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Twin Research Abstracts 3

The following section continues the review of the current literature on twins and twin research started in issues 30:3 and 32:1. This consists of the reproduction of abstracts of publications other than those appeared in our journal itself.

Covered in this issue are publications abstracted in November and December 1980 by Psychological Abstracts (PA) and in the whole of 1980 by the following series of Excerpta Medica (EM): Cancer (C); Cardiovascular Diseases and Cardiovascular Surgery (CD); Chest Diseases, Thoracic Surgery, and Tuberculosis (ChD); Developmental Biology and Teratology (DBT); Dermatology and Venereology (DV); Endocrinology (E); Gerontology and Geriatrics (GG); General Pathology and Pathological Anatomy (GP); Human Genetics (HG); Internal Medicine (IM); Immunology, Serology, and Transplantation (IST); Ophthalmology (O); Obstetrics and Gynecology (OG); Oto-Rhino-Laryngology (ORL); Physiology (Ph) Pediatrics and Pediatric Surgery (PPS); Radiology (R).

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0. TWIN BIOLOGY AND TWIN RESEARCH METHODOLOGY

78-0-25 EMHG-24-1386

CONCORDANCE AND DISCORDANCE OF ANENCEPHALY IN 109 TWIN PAIRS IN JAPAN

Y. Imaizumi
Institute of Population Problems, Ministry of Health and Welfare of Japan, Kasumigaseki, Tokyo, Japan
Japanese Journal of Human Genetics (1978) 23:389–393.

109 pairs of twins with anencephaly were ascertained during the period from 1969 to 1976 in Japan. The rate of concordance in anencephalic twins was 8.3% and seems to be higher than those of previous reports.

78-0-26 EMHG-22-1868

C-BANDS IN CHROMOSOMES 1, 9, AND 16 TWINS

J. Viegas and F.M. Salzano
Department of General Medicine, Faculty of Medicine, Federal University, Pelotas, Brazil
Human Genetics (1978) 45:127–130

Thirty-two pairs of Caucasoid twins, 16 monozygotic (MZ) and 16 dizygotic (DZ) of the same sex, were studied in relation to the C-bands of chromosomes 1, 9, and 16. Concordance was not absolute among MZ, the best evaluation of the degree of genetic determination for these traits being 0.40 for chromosome 16, 0.64 for chromosome 1, and 0.73 for chromosome 9. Possible explanations for the failure to obtain 100% concordance are methodologic shortcomings, intercell variations in chromosome contraction, and unequal mitotic crossing over.

79-1-07 EMOG-38-1866

ULTRASOUND DIAGNOSIS OF QUINTUPLETS FOLLOWING CLOMIPHENE-INDUCED OVULATION

R.W. Warner, S. Sharma, and H.E. Fox
Department of Obstetrics and Gynecology, University of Rochester School of Medicine and Dentistry, Strong Memorial Hospital, Rochester, New York
Journal of Clinical Ultrasound (1979) 7:379–380

A quintuplet pregnancy following clomiphene citrate induction of ovulation is a rare occurrence. This is apparently the first reported diagnosis of quintuplets by ultrasound in a patient following clomiphene induction of ovulation. Multiple pregnancies involving three or more fetuses present special problems to the sonographer and the physician. As reported by Gottesfeld, there is often poor correlation between the numbers of heads and chests. We found it most advantageous to locate the heads and chests independently using a combination of contact scanning and linear-array real-time ultrasound. Following this, sequential scanning of the uterus in longitudinal and transverse planes was carried out. Finally, the linear-array real-time scanner was used to line up the long axis of each fetus and verify viability. It is important for the physician and the sonographer to be alert to the higher incidence of twinning associated with ovulation induction by this medication. Careful attention to scanning technique is important in verifying the number of fetuses present in multiple pregnancies.

79-1-08 EMOG-38-2769

SUCCESSFUL MANAGEMENT OF QUADRUPLET PREGNANCY IN A PERINATAL UNIT

A.T. Shennan, J.E. Miligan, and P.K. Yeung
Perinatal Unit, Women's College Hospital, Toronto, Canada
Canadian Medical Association Journal (1979) 121:741–745

A case of quadruplet pregnancy is outlined and the management is described to demonstrate the application of monitoring and therapeutic procedures currently available for a multifetal pregnancy. Recording of the nonstressed fetal heart rate, ultrasound monitoring and glucocorticoid stimulation of pulmonary biochemical maturity were done. A successful outcome was achieved with a combined obstetric-neonatal approach and the experience of a perinatal unit.

79–1–09 EMOG-38–1002

TRIPLET BIRTHS; 24 CASES COLLECTED OVER 10 YEARS

H. Renaud, B. Salle, M. Berland, et al
Clinique Médicale, Hôpital Edouard Herriot, Lyon, France
Journal de Gynecologie Obstetrique et Biologie de la Reproduction (Paris) (1979) 8:543–547

Between the 1st January 1969 and the 31st December 1978 we have taken into our hospital 67 children, the issue of 24 triplet pregnancies. Five children died before admission. The mean age of the mothers was 30.2 years and 15 of the 24 mothers were multiparous. There was a family history of multiple pregnancies on the maternal side in 16 of the 24 mothers and 9 had ovulation induced by treatment with gonadotrophins and/or with clomiphene citrate. 60 of the babies were born via the vagina route but 12 of these only after obstetrical manoeuvres necessitated by abnormal presentation. 12 children were born by cesarean section (2 for acute fetal distress; 1 for toxaemia of pregnancy and 1 case for cervical dystocia). 87.5 per cent were born prematurely (the mean gestational age being 36.2 weeks). The mean birth weight was 1,800 g (the range was from 960 to 2,700 g). 29 infants (40.2 percent) had intrauterine growth retardation. The sex ratio was equal: 36 boys and 36 girls. 19 infants has signs of respiratory troubles: 5 cases of hyaline membrane disease and 14 cases of fetal asphyxia syndrome, which were possibly brought about by too long an interval between the deliveries of the infants. Seven infants (9.7 per cent) died. There were 3 cases of deaths in utero because of acute fetal distress and 2 deaths during treatment. One patient died of sepsis and 1 other died of hyaline membrane disease complicated by ventricular haemorrhage. Two of the children now aged between 1 and 10 years show psychomotor retardation with development quotients of less than 80 and 3 have speech difficulties. As far as children under the age of 1 year are concerned, the prognosis seems to be favourable but they have not yet been observed sufficiently long enough. Multiple

pregnancies are high-risk pregnancies. The diagnosis should be made early to avoid prematurity and high quality care must be available in labour and in the neonatal period in order to improve the neonatal prognosis.

79-1-10 EMOG-37-2439

TRIPLET PREGNANCY. A 10-YEAR REVIEW OF CASES AT BARAGWANATH HOSPITAL

E.L. Pheiffer and A. Golan
Department of Obstetrics and Gynaecology, Baragwanath Hospital, Johannesburg, South Africa
South African Medical Journal (1979) 55:843-846

A series of 61 triplet pregnancies delivered in the Baragwanath Hospital for the 10 years 1967-1976 is analysed, the incidence being 1:2,789 deliveries. The average maternal age was 29.6 years, and average parity 3:7; 60% had had adequate antenatal care, a figure significantly higher than that for the local normal pregnant population. The vast majority of the patients had vaginal deliveries, although the proportion of manipulative procedures was high. The duration of labour was strikingly short in most instances. The fetal outcome was impressively good, although somewhat better with the second triplet than with the other two. This indicates that, in spite of the recent tendency towards liberal use of caesarean section in these patients, a careful and appropriate vaginal approach has its merits.

79-1-11 EMOG-37-2734

DIAGNOSIS OF MULTIPLE PREGNANCY

G.J. Jarvis
Jessop Hospital for Women, Sheffield, England
British Medical Journal (1979) 2:593-594

A study was made of 94 sets of twins born during 1975-8. Nine of these sets had not been diagnosed before labour started. Of the others, 75 were diagnosed as a result of clinical suspicion and 10 were diagnosed unexpectedly during the antenatal period, nine by ultrasonic examination. Thus while ultrasonic examination has substantially reduced the incidence of undiagnosed twins, a fifth of all patients who had ultrasonography performed in the presence of a twin pregnancy were reported on at least one occasion to have a singleton pregnancy. Ultrasonography must be performed at least twice, therefore, before a multiple pregnancy can be confidently excluded.

79-1-12 EMOG-37-377

DIAGNOSIS OF POOR INTRAUTERINE FETAL GROWTH IN TWIN PREGNANCIES

J. Klammer, A. Bichler, W. Brabec, and O. Dapunt
Universität Klimik, Frauenheilkunde, Innsbruck, Austria
Zeitschrift fur Geburtshilfe und Perinatologie (1979) 83:12-18

30 twin pregnancies were studied with regard to intrauterine growth retardation. In 11 cases both twins were of normal weight. In 7 cases one twin and in 12 cases both twins were under-weight (the growth retardation was classified according to the intrauterine growth curves after Hohenauer, applicable to our area). The determination of total 24 hour urinary estrogens and serial ultrasonic measurements of biparietal diameters appeared to be the best parameters for the detection of intrauterine growth retardation. Serum HPL determination was unreliable. In addition 2 types of growth retardation in twins could be recognized from the estrogen values. In one, a dysfunction of the fetoplacental unit existed; in the other, the etiology of the growth retardation could not be determined by the methods used in the study (genetic origin?).

79-1-13 EMHG-24-276

COUNSELING PROBLEMS WHEN TWINS ARE DISCOVERED AT GENETIC AMNIOCENTESIS

A.G.W. Hunter and D.M. Cox
Division of Medical Genetics, Department of Pediatrics, Health Science Center, Winnipeg, Manitoba, Canada
Clinical Genetics (1979) 16:34-42

With the increased use of routine ultrasonography at the time of genetic amniocentesis, twins are increasingly likely to be discovered at the time when the procedure is to be carried out. In the presence of twins, the likelihood of finding an abnormality may be significantly increased, but at the same time problems such as discordance between the twins for the abnormality, or the inability to test both twins may occur. This altered situation may affect the parents' decision as to whether or not to undertake amniocentesis and the need for additional counseling prior to proceeding with the amniocentesis is stressed.

79–1–14 EMDG-37-961

USE OF ULTRASOUND AND HORMONE ASSAYS IN THE DIAGNOSIS, MANAGEMENT, AND OUTCOME OF TWIN PREGNANCY

S.L.B. Duncan, B. Ginz, and H. Wahab
Department of Obstetrics and Gynaecology, North General Hospital, Sheffield, England
Obstetrics and Gynecology (1979) 53:367–372

A study of 79 twin pregnancies was conducted between 1973 and 1976 with particular reference to the use of ultrasound and hormone analysis. There were 17 perinatal deaths, a perinatal mortality rate of 107 per 1000 deliveries. The contributing factors were antepartum anoxia (40%), prematurity (30%), congenital abnormalities (18%), and obstetric trauma (12%). During the period of study there was a complete change in the method of confirming twin pregnancies, i.e. in 1973, 84% were confirmed by x-ray and in 1976, 86% by ultrasound. About 40% were diagnosed at 28-weeks' gestation or earlier. The ranges (mean $\pm$ 2 SD) for human placental lactogen (hPL) and urinary estrogens have been established for twin pregnancy, and the value of these measurements in the antenatal management of twin gestations is discussed.

79–1–15 EMOG-37-380

ULTRASONIC DETECTION OF COMBINED PREGNANCIES

R.B. Kurzel
Department of Obstetrics and Gynecology, State University of New York, Buffalo
American Journal of Obstetrics and Gynecology (1979) 134:100–101

The diagnosis of combined pregnancy will not be made unless the entity is considered for all patients suspected of having an ectopic pregnancy, especially in those with the atypical presentation of having no vaginal bleeding, and where the uterine size is larger than expected for an ectopic. In both cases presented, the diagnosis could have been made by preoperative ultrasonic examination. With the increased availability of diagnostic ultrasound, I suggest that all such patients receive such scans as part of their routine workup, in addition to postoperative monitoring of serum HCG levels, which is useful in those early cases where the results of the intrauterine scan can be inconclusive.

78-0-27 EMPPS-42-433

A STUDY OF TWIN BIRTHS

G.S. Bildhaiya
Department of Preventive & Social Medicine, Municipal Medical College, Ahmedabad, India
Indian Pediatrics (1978) 15:931–934

A retrospective study of the twin births based on the available records was undertaken at Chinai Maternity Home, V.S. General Hospital Ahmedabad. The incidence of twin births during the period 1969 to 1975 was recorded to vary from 1.23 to 1.75 of the total number of deliveries, with an overall incidence rate of 1.47 and was found to be more than most countries of the world for which information was available. Three-fourths of the twin births were of the same sex and one fourth of unlike sex. The incidence of twin births in different age and parity groups of the mothers was analysed. The incidence was recorded to be more in the age group 21 to 35 years and in higher parity groups.

78-0-28 EMHG-24-2132

FERTILITY AND LONGEVITY IN TWINS, SIBS, AND PARENTS OF TWINS

G. Wyshak
Department of Preventive & Social Medicine, Harvard Medical School, Boston, Massachusetts
Social Biology (1978) 25:315–330

Genealogical records containing birth and death rates for completed families have been analyzed to compare the longevity of twins, sibs and parents. The data are restricted to twins and sibs who survived to adulthood and married. The findings, similar to those found with respect to fertility (Wyshak and White, 1969), show that twins, especially male twins, are disadvantaged in comparison with their male sibs. Sib-sib and parent-offspring correlation analysis confirmed that there is a genetic component in the determination of life span, but environmental factors contribute more to the total variation. No evidence of a stronger maternal than paternal effect was found. Twin bearers also lived longer than nontwin bearers. Even among persons who survived to age 50 or more, parents of twins had more children and lived slightly longer than their twin and nontwin offspring. Regression analysis for persons who survived to 50 or longer indicated that in addition to life span of parents, secularity (year of death) and fertility (number of children borne) were the best predictors of longevity, though only a small proportion of the variation could be accounted for by these and other demographic variables. Life span has shown a consistent increase over time from the seventeenth century through the nineteenth century, while fertility has tended to decline. However, among persons surviving to age 50, when the relation between secularity and fertility and secularity and longevity is controlled, a significant correlation between fertility and longevity remains. This relation, observed in populations that did not practice voluntary family size limitation, would not be found in contemporary data. Maternal mortality accounted for the shorter life span of women than for men: eliminating its effect gives women a slight advantage. The fertility and longevity experience of migrants who survived to age 50 is more favorable than that of persons who did not migrate.

79-0-03 EMOG-37-962

A CASE OF SUPERFETATION

M. Litschgi and H. Dietrich
Frauenklinik, Kant. Spit., Winterthur, Switzerland
Geburtshilfe Frauenheilkunde (1979) 39:248–252

A case of superfetation is reported. A 23 yr old gravida 3, para 1, aborta 1 had a D&C and partial left salpingectomy for ruptured left tubal pregnancy. The microscopic examination of the curettings and the left fallopian tube revealed two pregnancies. The tubal pregnancy was obviously older than the intrauterine pregnancy and the two fertilized eggs had to result from different ovulations.

79-0-04 EMHG-24-1505

UNUSUAL XX/XY CHIMERISM

L. Iselius, O. Lambert, J. Lindsten, et al
Department of Clinical Genetics, Karolinska Hospital, Stockholm, Sweden
Annals of Human Genetics (1979) 43:89–96

Apparently identical twin boys are both XX/XY and have two populations, A_1 and B, of cells in their peripheral blood. Chimerism in somatic tissue outside the blood cells can be demonstrated in only one of the twins. From analysis of chromosomes and many gene markers the mechanism of origin of the unusual twins remains unclear.

79-0-05 EMHG-24-602

A FURTHER CASE OF CHIMERIC TWINS: GENETIC MARKERS OF THE BLOOD

V. Pausch, I. Bleier, E. Dub, et al
Institute of Blood Group Serology, University of Vienna, Austria
Vox Sanguinis (1979) 36:85–92

A further case of blood chimerism in male twins concerning red and white cells is described. The erythrocyte chimerism could be detected by 5 out of 16 genetic marker systems and the lymphocyte chimerism by the analysis of autosomal polymorphisms of peripheral blood lymphocytes.

79-0-06 EMHG-25-2279

MATERNAL AGE, DIZYGOTIC TWINNING RATES AND AGE AT MENOPAUSE

W.H. James
Department of Human Genetics and Biometrics, University College, London, England
Annals of Human Biology (1979) 6:481–483

The dizygotic (DZ) twinning rate declines after about maternal age 38 in Caucasian populations. Bulmer (1970) offered the explanation that waning ovarian function causes a decline in rates of double ovulation in originally twin-prone women. The present note suggests that some small part of the decline is caused by the earlier cessation of ovulation altogether in these women (presumably also as a result of waning ovarian function).

79-0-07 EMHG-24-154

MATERNAL HEIGHT AND TWINNING

G. Corney, D. Seedburgh, B. Thompson, et al
MRC Human Biochemistry and Genetics Unit, Galton Laboratory, University College, London, England
Annals of Human Genetics (1979) 43:55–59

Data on maternal height are presented for 307 pairs of newborn twins of known zygosity from Oxford and 267 pairs from Aberdeen and north-east Scotland. The results support the hypothesis that mothers of DZ twins are taller than those of MZ twins. Mothers of MZ twins resemble mothers of singletons in height, whereas mothers of DZ twins are taller.

79-0-08 EMIST-21-3091

ANALYSIS OF INTRAFAMILIAL CORRELATIONS, SERUM LEVELS OF IgM AND THE HUMAN X-CHROMOSOME

V. Escobar and D. Bixler
Department of Oral-Facial Genetics, Indiana University Medical Center, Indianapolis, Indiana
Human Heredity (1979) 29:306–309

The serum concentrations of immunoglobulin M (IgM) were measured in a sample of 93 monozygotic twin pairs, their spouses, and their offsprings. The hypothesis that the human X chromosome carries genes that control the levels of IgM was tested with two different approaches neither one of which provided conclusive evidence to support the IgM X-linked gene hypothesis.

79-0-09 EMHG-24-2742

SISTER CHROMATID EXCHANGES IN CULTURED PERIPHERAL LYMPHOCYTES FROM TWINS

C. Pederson, E. Olah, and U. Merrild
University Institute of Clinical Genetics, Odense, Denmark
Human Genetics (1979) 52:281–294

Sister chromatid exchange points (SCE points) on individual chromosomes were studied in cultured lymphocytes from 11 monozygotic (MZ) and 9 dizygotic (DZ) same-sexed pairs by means of sequential Q-banding and BUdR-Giemsa techniques. No statistically significant variation between unrelated individuals with respect to SCE points on specific chromosomes was found. Intrapair differences in the number of SCE points on specific chromosomes were not significantly smaller between MZ twin partners as compared with DZ partners. The results suggest that genetic factors do not play any major role in the frequency and distribution of SCE in normal subjects.

79-0-10 EMHG-25-1785

HUMAN CELL SURFACE ANTIGENS CODED BY GENES ON CHROMOSOME 21

M.M. Chan, K. Kano, B. Dorman, et al
Department of Microbiology, State University of New York, Buffalo
Immunogenetics (1979) 8:265–275

Clones of man-mouse hybrids derived from four different crosses which retained a very limited number of human chromosomes were studied for the expression of human cell surface antigens. In testing a variety of rabbit antisera to human cells and tissues, it was found that an antiserum to Daudi cells recognizes human species-specific antigen(s) on three 'WA' clones, all of which carried human chromosome

21. Absorption of the antiserum with any of the clones abolished its activity against all clones, indicating that the antiserum recognized the same antigen(s) on these clones. The antigen(s) was shown to be present on normal human lymphocytes, more on B than on T cells, but apparently absent from erythrocytes. C3H mice, from which the murine parent originated, were immunized with the WA clones carrying human chromosome 21. The resultant antisera reacted with clones carrying chromosome 21 but not with clones which did not retain this chromosome, even though some of these clones possessed many other human chromosomes. The murine antisera reacted with some, but not all, human peripheral blood lymphocytes tested. Absorption studies clearly showed the multiple nature of the antigens recognized by these antisera. Studies on cells of identical twins provided evidence that these antigens are inheritable.

79-0-11 EMPPS-43-817

MONOZYGOTIC TWINNING AND STRUCTURAL DEFECTS

A.A.G.L. Schinzel, D.W. Smith, and J.R. Miller
Dysmorphology Unit, Department of Pediatrics, University of Washington School of Medicine, Seattle
Journal of Pediatrics (1979) 95:921–930

An excess of structural defects occurs in monozygotic twins compared to dizygotic twins or singletons. The excess is composed of three categories of defects. The first includes defects which are part of the MZ twinning, such as conjoined twins and some amorphous twins. In addition, all early embryonic malformations and malformation complexes such as sirenomelia mc, holoprosencephaly mc, and anencephaly mc are increased in MZ twins. The reason for this association is considered to be the common etiology for both the MZ twinning and the early malformation problem. MZ twins provide an excellent model for appreciating the spectra of particular malformation complexes, since the twins often have different gradations in severity of the same type of structural defect. The finding of both discordant and concordant MZ twins with Goldenhar, de Lange, and Rubinstein-Taybi syndromes suggests that these 'syndromes' might be early malformation complexes. The other two categories are considered secondary to the MZ twinning process. The most unique category results from any vascular interchange between the MZ twins. Depending on their nature, vascular connections may give rise to reverse flow with acardiac status in one twin during early development, or to vascular disruptions from a deceased co-twin with intravascular coagulation causing embolization in the surviving co-twin. The latter defects may include microcephaly, porencephalic cysts, hydranencephaly, intestinal atresia, aplasia cutis, and limb amputation. Unequal growth may occur as a result of artery to vein placental anastomoses. The final category is deformations due to crowding in utero during late gestation. These do not differ from those in DZ twins.

79-0-12 EMHG-25-755

THE EPIDEMIOLOGY OF ANENCEPHALY AND SPINA BIFIDA IN IZMIR, TURKEY, IN THE LIGHT OF RECENT AETIOLOGICAL THEORIES

M.R. Buckley and O. Erten
Department of Obstetrics and Gynaecology, Ege University, Izmir, Turkey
Journal of Epidemiology and Community Health (1979) 33:186–190

The data from this study suggest that, in western Turkey, potato consumption and water hardness do not play a significant role in the aetiology of anencephaly and spina bifida (ASB). Several of the predictions of the fetus-fetus interaction theory are not supported. Other predictions could not be tested because of lack of information on the dizygotic (DZ) twinning rate. Twin data from this study, together with previous material containing explicit information on zygosity, suggest that true concordance of a particular neural tube anomaly occurs only in monozygotic (MZ) twins. It also seems that even ASB concordance occurs in DZ twins only at a rate comparable with recurrence in siblings. This confirms the earlier refutation (Field and Kerr, 1974) of the supposition of Nance (1971) that MZ twin pairs are strikingly discordant for ASB compared with DZ pairs. However, the evidence seems to go further than Field's assertion that MZ and DZ pairs are affected about equally. Concordance in DZ twins is in comparison with sibling data, but MZ pairs show a significantly higher rate of concordance in both categories. Finally, the incidence of ASB in Izmir compared with the areas of ethnic origin of the Turks, and the high representation of families from Balkan areas where the incidence more closely resembles that of Izmir, suggest that the genetic factor is important in this area.

79-0-13 EMPPS-42-3422

THE SEX RATIO IN SPINA BIFIDA

W.H. James
Galton Laboratory, University College, London, England
Journal of Medical Genetics (1979) 16:384–388

Published reports one the sex ratio of spina bifida have been reveiwed. With one exception, there seems to be no evidence of variation of the sex ratio of spina bifida. In particular, unlike anencephaly, the sex ratio of spina bifida seems to be unrelated to the prevalence of the malformation: this (M/(M + F)) is of the order of 0.44 in respect of all spina bifida births (liveborn and stillborn). The sex ratio of spina bifida in Negroes does not seem to differ from that in whites (though the data on this point are not numerous). The exception noted above concerns spina bifida occurring in twins: these cases are disproportionately often female. The point stands in need of explanation.

79-0-14 EMR-42-460

COMPUTED TOMOGRAPHY IN PREOPERATIVE DIAGNOSIS OF CONJOINED TWINS

S. Halwa, J. Wojtowicz, J. Gradzki, et al
Institute of Radiology, Poznan Medical School, Poznan, Poland
Journal of Computer Assisted Tomography (1979) 3:411–412

A case of thoracoomphalopagus twins diagnosed preoperatively by computed tomography is described.

79-0-15 EMOG-38-1000

COMPUTED TOMOGRAPHY IN CRANIOPAGUS OCCIPITALIS TWINS

I. Bancovsky, E. Bianco, and F. Alvés Moreira
Centro de Tomografia, Hospital 9 di Julho, Sao Paulo, Brazil
Journal of Computer Assisted Tomography (1979) 3:836–837

Cranial computed tomography in the evaluation of possible surgical separation in a case of craniopagus occipitalis twins demonstrated the relationship between certain intracranial structures. Computed tomography appears to be a simple, useful diagnostic procedure for such evaluation.

79-0-16 EMPPS-42-3414

HYDRANENCEPHALY IN A TWIN GESTATION

S.P. Regec and R.L. Bernstine
Department of Obstetrics and Gynecology, St. Elizabeth Hospital Medical Center, Youngstown, Ohio
Obstetrics and Gynecology (1979) 54:369–371

Hydranencephaly in a twin gestation was demonstrated prenatally by ultrasonography and confirmed following delivery by cranial computerized axial tomography (CAT). Prenatal diagnosis of intracranial anomalies is possible with the use of ultrasonography. This is the third report of the occurrence of hydranencephaly in a twin gestation.

79-0-17 EMHG-24-1071

HYDROCEPHALUS WITH TERATOMA - AN ATTEMPT AT TWINNING: REPORT OF CASE

J.S. Stevens, Jr.
Allentown Osteopathic Hospital, Allentown, Pennsylvania
Journal of the American Osteopathic Association (1979) 78:441–445

Abnormal accumulation of fluid in the cranial vault usually is due to obstruction to its flow, but may be the result of overproduction. In only a few cases, however, has intracranial teratoma been reported as the cause. A case in which a tumor containing various types of fetal tissue was found in the cranium of a hydrocephalic fetus is reported here, with data as to its management and possible causes.

79-0-18 EMPPS-42-3889

ANESTHETIC MANAGEMENT OF EMERGENCY SEPARATION OF PYGOPAGUS TWINS

Y. Kitamura, E. Kitamura, and M. Fujimori
Department of Anesthetics, Hoshigaoka Kohseinenkin Hospital, Osaka, Japan
Japanese Journal of Anesthesiology (1979) 28:300–305

Separation of pygopagus twins was decided on at the age of 20 hours, as one of the two babies was grossly abnormal with no chance of survival and he threatened his 'normal' brother. The anesthetic management is described.

79-0-19 EMPPS-43-1500

THE SURGICAL SEPARATION OF PYGOPAGOUS TWINS

R. Cloutier, L. Levasseur, M. Copty, and J.P. Roy
Department of Surgery, Laval University Medical Center, Quebec, Canada
Canadian Journal of Pediatric Surgery (1979) 14:554–556

A set of female pygopagous twins was successfully separated. Preparation for the main operative procedure and the surgical anatomy encountered are described in details.

79-0-20 EMPPS-42-523

SEPARATION OF CONJOINED THORACOPAGOUS TWINS JOINED AT THE RIGHT ATRIA

D. Synhorst, M. Matlak, Y. Roan, et al
Department of Pediatrics, University of Utah College of Medicine, Salt Lake City
American Journal of Cardiology (1979) 43:662–665

A case of conjoined thoracopagous twins with a shared atrial myocardium who were successfully surgically separated is described. Twin B had hypoplastic right heart syndrome and was dependent on Twin A for oxygenation of her blood. The twins were surgically separated by dilating Twin B's ductus arteriosus with an infusion of prostaglandin E_1 and creating an aortopulmonary shunt to increase her pulmonary blood flow: both twins survived the operation. However, 1 week after surgery Twin B had hepatic and renal failure and died.

79-0-21 EMPPS-42-3350

PULMONARY FUNCTION STUDIES OF CONJOINED THORACOPAGUS TWINS

R.E. Barrow, C.J. Richardson, and C.E. Aplin II
University of Texas Medical Branch, Galveston, Texas
Pediatric Research (1979) 13:924–927

Lung functions were measured on 13 day old conjoined thoracopagus twins. Mean values for tidal volume and minute ventilation were 14.8 ml and 1102 ml/min for twin A and 12.8 ml and 963 ml/min for twin B. Functional residual capacities (FRC) were 35 ml/kg and 39 ml/kg for twins A and B, respectively. Pulmonary compliance and flow resistance for twin A were 2.8 ml/cm H_2O and 75 cm H_2O/literXsec^{-1} with 45% of the total work used to overcome elastic resistance. Although values for resistance and work of breathing are within the normal range for studies reported elsewhere, these results tend to be elevated and probably reflect an abnormal state. With decreasing reluctance by surgeons to separate conjoined thoracopagus twins, data concerning their preoperative respiratory pathophysiology assumes greater importance. Pulmonary function tests on conjoined twins may provide valuable information concerning the feasibility and prognosis for successful separation.

80-0-01 EMHG-25-2498

CONCORDANCE RATES IN TWINS FOR ANENCEPHALY

W.H. James
Galton Laboratory, University College, London, England
Journal of Medical Genetics (1980) 17:93–94

New estimates are offered of the concordance rates in twins for anencephaly. In MZ pairs, the percentage which are concordant is about 7. This is significantly higher than (about three or four times) the value expected on the assumption that concordance is accounted for by raised recurrence rates within sibships. In DZ pairs, the data are less numerous and the percentage concordant (about 2 to 5) does not so far throw much suspicion on this hypothesis in regard to them.

80-0-02 EMHG-25-2571

ANTENATAL DIAGNOSIS OF DOUBLE MONSTERS. ECHOGRAPHY CONTRIBUTION

R. Henrion, J.P. Aubry, M.C. Aubry, et al
Maternité Port-Royal, Paris, France
Annales de Radiologie (Paris) (1980) 23:437–441

Conjoined twins is a very rare anomaly in which there is an imperfect division of the embryo after the formation of two embryonic areas. This is a gross aberration of development in monozygotic twinning. Any part of the bodies may be joined but the common type is thoracopagus. The diagnosis is rarely made antepartum. It can be suspected if hydramnios is present. Echography is a better procedure than radiography. The fetal heads are at the same level, the thoracic cages are together or in proximity, and their relative position does not change with movement or manipulation. Modern surgical techniques have enabled the successful separation of twins and it is therefore important that the baby should be born in the best condition possible. The possibilities of survival of conjoined twins depends upon such factors as the degree of separation, the site of union and the sharing of vital organs. In this case, it was impossible because there was only one heart and one liver.

80-0-03 EMHG-25-56

ALTERED SENSITIVITY TO COLCHICINE AND PHA IN HUMAN CULTURED CELLS

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Laboratoire de Génétique, Hôpital Des Enfants, Bordeaux, France
Human Genetics (1980) 53:249–253

PHA-stimulated lymphocytes cultivated from a pair of human monozygotic twins yielded mostly tetraploid cells when colchicine was not used to arrest the metaphases. The rate of tetraploidy was also enhanced by colchicine in fibroblasts cultured without PHA. In in situ condition, larger than usual cells were observed. Other defects found in parental lymphocyte cultures included C-anaphase cells and increased cell aggregation. These results suggest a membrane mutation resulting in hypersensitivity to PHA and variant response to colchicine.

80-0-04 EMHG-25-1260

DISEASE CONCORDANCE AND SEX SIMILARITY IN TWINS

T. Marshall and E.G. Knox
Department of Social Medicine, University of Birmingham, England
Journal of Epidemiology and Community Health (1980) 34:1–8

Our examination of the problems of drawing aetiological inferences from mixed MZ/DZ twin data leads to the following main conclusions. The use of Weinberg's method, and of concordance estimates, are unsatisfactory. Weinberg's approach, as commonly applied, conceals a confusion between the proportion of MZ pairs in random samples, and in samples selected on the basis of disease. The use of these methods to infer causal mechanisms depends upon prior assumptions concerning the causal mechanisms themselves. Complex aetiologies, containing both environmental and genetic determinants, introduce further complications. A model framework was therefore developed in which a direct approach to the genetic/environmental question was abandoned, and which depends instead upon the timing of the determining events, irrespective of their nature. This model permits the investigation of disease data in twins without requiring an over-restrictive set of prior assumptions. Seven equations represent the frequencies of the seven different kinds of twin pairs in which one or both is affected. The frequencies are declared in terms of four parameters representing the frequencies of determining events before and after the point of cleavage of MZ pairs, in males and females separately. The seven equations are set against observations and the parameters are solved. Pragmatically, minimisation of χ^2 was the only approach which met our

needs. It has the added advantage that, in addition to solving the parameter values, it is capable of detecting (some) situations for which the model is inappropriate. The timing-based model is easy to use. Applications to published data illustrated the various ways in which inferences might be drawn. In one example (mongolism) where the sequence of events is well understood, the method generated an interpretation compatible with what is already known. In another example (anencephalus) its application led down reasoning pathways which have already been derived on other grounds. In another example (coronary disease) the self-rejecting properties of the model were demonstrated. In the case of schizophrenia a new and reasonably plausible model was suggested. In the case of infantile hypertrophic pyloric stenosis, several existing model explanations were excluded.

80-0-05 EMMG-25-2559

A CASE OF TWINS WITH PROBABLE SUPERFETATION

J. Betrams and H. Preuss
Abt. Laboratorium, St. Elisabeth Krankenhaus, Essen, West Germany
Zeitschrift fur Rechtsmedizin (1980) 84:319–321

A twin case of disputed paternity with probable superfetation is reported. The putative father could be excluded as the father of Twin F by HLA, GLO, and Ss typing results, but could not be excluded as the father of Twin S, with a probability of paternity for this twin of 99.995%. A birth weight difference of 450 g and the evidence for additional sexual intercourses by the mother suggest the very rare event of a superfestation.

80-0-06 EMPPS-43-2708

GESTATIONAL AGE IN TWINS

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Archives of Disease in Childhood (1980) 55:281–284

Dubowitz et al. have offered a scoring system for estimating the gestational age of newborn babies. If the system is applied to twin pairs, the heavier twin is generally estimated to have a greater gestational age than the lighter one. Previously this has been interpreted as a flaw in the scoring system. However, it may well be that in some pairs gestational ages are slightly different and that therefore, the heavier twin would be expected to have a greater gestational age. Such cases would arise through superfecundation (the formation of two zygotes from different coitions). Superfecundation can be proved only in rare cases (those with two fathers). It can be argued that the rarity of such cases is accounted for by the rarity with which women expose themselves to the risk of bearing such twins (and by the improbability of detection), rather than by the rarity of superfecundation. It is infered that superfecundation by the same man is relatively common and that therefore dizygotic twins quite often have different gestational ages. The scoring system of Dubowitz can be tested for bias by submitting monozygotic pairs to it; the association between weight and estimated gestational age should be absent in such pairs. If the system proves free of such bias, then a finding first reported here will assume some interest: it is in opposite-sexed twin pairs, the male is significantly more often assessed as having the greater gestational age. It is suggested that this finding should be provisionally accepted as evidence for the hypothesis that male zygotes are formed earlier than females.

80-0-07 EMHG-25-94

USE OF MULTIPLE LOGISTIC ANALYSIS IN TWIN ZYGOSITY DIAGNOSIS

S. Sarna and J. Kaprio
Department of Public Health Science, University of Helsinki, Finland
Human Heredity (1980) 30:71–80

Stochastic methods were applied to the diagnosis of twin zygosity by mailed questionnaire in a study on adult twins. Multiple logistic discriminant analysis was able to classify twin pairs previously left unclassified (XZ) by a deterministic method, and accuracy of classification was verified by blood testing. The mean intrapair differences of height and weight of XZ pairs were in between dizygotic and monozygotic pairs,

but the frequency of personal contact between XZ twins was significantly less than that of MZ or DZ pairs. Both classification methods, when used separately with the same questions, left unclassified 6.5–7.6% of all 11,542 respondent pairs in the Finnish Twin Registry, but deterministic classification followed by logistic analysis misclassified only 1.9% of all twin pairs.

1. MULTIPLE PREGNANCY AND TWIN CARE

78-1-34 EMOG-37-2790

INSTITUTIONAL PERINATAL MORTALITY IN TWIN PREGNANCIES

S. Kizer and O. Berroteran
Maternidad Concepcion Palacios, Caracas, Venezuela
Ginecologia y Obstetricia de Mexico (1978) 44:313–325

As institutional perinatal mortality analysis of 1,496 twin pregnancies occurring at the Maternidad Concepcion Palacios has been done. Excluding the newborn with weight of 999 grams or less, the mortality was 11.88%, being 10.57% for the first twin and 13.20% for the second; this difference was significant. The following factors were related to a higher mortality, newborn weight less than 2,000 grams—for both twins; no antenatal care—for the second twin; mother age 19 years old or less and 40 years old or more—for both twins; being primigravidas—for the second twin; breech presentation and spontaneous delivery—for the second twin; an interval between births of 21 or more minutes—for the second twin; being male for both twins—not related to birth order. Respiratory pathology was the more frequent cause of newborn deaths for both twins.

78-1-35 EMOG-37-653

SUCCESSFUL QUINTUPLET PREGNANCY FOLLOWING OVULATION INDUCED WITH HUMAN MENOPAUSAL GONADOTROPIN AND HUMAN CHORIONIC GONADOTROPIN

S. Higashiyama and H. Okada
Department of Obstetrics and Gynecology, Kyoto Prefect University of Medicine, Kyoto, Japan
Japanese Journal of Fertility and Sterility (1978) 23:25–30

Induction of ovulation in anovulatory infertile patients with gonadotropins has significantly increased the incidence of multiple pregnancy. A quintuplet pregnancy that occurred after induction of ovulation with human menopausal gonadotropin (HMG) and human chorionic gonadotropin (HCG) is described. This case is the first quintuplet with a successful outcome in Japan, while the fetal wastage in cases of multiple pregnancies is high, often due to abortion and prematurity. Details of the treatment, the pregnancy and delivery are presented.

79–1–16 EMR-42–711

ULTRASOUND OBSERVATIONS IN MULTIPLE GESTATION WITH FIRST TRIMESTER BLEEDING: THE BLIGHTED TWIN

H.J. Finberg and J.C. Birnholz
Department of Radiology, Harvard Medical School, Peter Bent Brigham Hospital, Boston, Massachusetts
Radiology (1979) 132:137–142

Twenty-two patients, 19 of whom presented with first trimester bleeding underwent ultrasound examination demonstrating a normal amniotic cavity containing a fetus with regular heart activity. In each, a separate anechoic or hypoechoic region was identified within the uterus compatible with a coexistent anembryonic pregnancy or 'blighted twin'. Three patterns, second sac, cresent of fluid outlining the intact sac and septal division of the amniotic cavity with one compartment empty, are described. Seven additional cases showing variant situations are discussed. The diagnosis of blighted twin carries a good prognosis for carrying the single gestation to term.

79-1-17 EMOG-37-1258

ULTRASOUND DIAGNOSIS OF FETAL ABNORMALITIES IN MULTIPLE PREGNANCY

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Acta Obstetricia et Gynecologica Scandinavica (1979) 58:153-161

Over a period of four years. 41 cases of abnormal multiple pregnancies were diagnosed successfully by ultrasound. These include several rare combinations of abnormalities. The most frequent was a normal pregnancy and a synchronous blighted ovum. Others were twin blighted ova, blighted ovum and missed abortion, missed abortion in both gestational sacs, two embryonic echoes with the development of only one baby, normal fetus and an anencephalic twin, normal fetus and fetus papyraceous and triplets with two fetuses papyraceous. The results suggest that one or more gestational sacs may be resorbed during pregnancy without any adverse effect on the coexisting normal fetus. From a practical point of view, it is important to be aware of these possibilities before giving the final diagnosis of multiple pregnancy to the patient. The more diagnostic ultrasound is used in obstetrics, the more rare abnormalities associated with multiple pregnancies will be revealed.

79-1-18 EMOG-38-1571

REAL-TIME ULTRASOUND B-SCAN AS AN AID TO ANTEPARTUM FETAL HEART RATE MONITORING IN MULTIPLE PREGNANCY. CASE REPORT

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Department of Obstetrics and Gynaecology, University of British Columbia, Vancouver General Hospital, Vancouver, Canada
British Journal of Obstetrics and Gynaecology (1979) 86:666-667

Real-time B-scan was found useful in locating the fetal hearts before antepartum fetal heart rate monitoring by Doppler ultrasound in a patient with a triplet pregnancy.

79-1-19 EMOG-37-378

ULTRASOUND EVIDENCE OF EARLY PREGNANCY FAILURE IN PATIENTS WITH MULTIPLE CONCEPTIONS

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British Journal of Obstetrics and Gynaecology (1979) 86:290-292

A review of 1500 pregnant patients: 30 of them (or 1 in 50, were thought to have multiple pregnancies when examined by ultrasound in the first trimester. Only 14 of the 30 patients (46.7 per cent) produced live infants: 13 twin and one set of triplets. Twelve (40 per cent) had bleeding in early pregnancy and 11 of these had a spontaneous abortion. Five of seven patients found to have a normal pregnancy and a coexistent blighted ovum ultimately delivered a single live infant.

79-1-20 EMR-42-1070

ULTRASONOGRAPHIC DIAGNOSIS OF FETAL ASCITES IN A TWIN PREGNANCY

Z. Weinraub, R. Langer, I. Bukovsky, et al
Department of Obstetrics and Gynecology, Ultrasonographic Sub-Unit, Asaf Harofe Government Hospital, University of Tel Aviv Medical School, Zerifin, Israel
Acta Obstetricia et Gynecologica Scandinavica (1979) 58:217-220

In the last two decades ultrasonographic examinations have become a useful noninvasive diagnostic tool in various obstetric conditions. A case is described where fetal ascites due to Rh-isoimmunisation in a twin pregnancy was antenatally diagnosed by means of B-scan technique. To our knowledge, this is the first report of such a case.

79-1-21 EMR-43-3362

ANENCEPHALY AND TWINS: PRENATAL ULTRASOUND AND ESTRIOL

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Department of Obstetrics and Gynecology, University of Washington School of Medicine, Seattle
Journal of Reproductive Medicine (1979) 22:264–266

A rare case of anencephalic twin pregnancy diagnosed prenatally with ultrasonography is reported. It is the only case found in the literature in which maternal 24-hour urinary estriol is documented in an anencephalic twin pregnancy. Ultrasound diagnosis and obstetric problems associated with such cases are discussed briefly.

79-1-22 EMOG-38-350

DOUBLE BLIND TRIAL OF RITODRINE AND PLACEBO IN TWIN PREGNANCY

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Division of Perinatal Medicine, Clinical Research Center, Harrow, Great Britain
British Journal of Obstetrics and Gynaecology (1979) 86:706–709

In a double blind trial, 25 patients with twin pregnancy were given 40 mg of ritodrine hydrochloride by mouth daily and 24 similar patients received a placebo. The ritodrine group had no significant prolongation of pregnancy nor increase in birth weight, and a high incidence of side effects occurred.

79-1-23 EMOG-37-2143

RESULTS OBTAINED FROM MORE INTENSIVE ANTENATAL AND INTRANATAL ATTENTION TO GEMINI PREGNANCY AT GYNAECOLOGICAL HOSPITAL OF KARL-MARX-STADT REGION

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Zentralblatt fur Gynackologie (1979) 101:839–844

Studies undertaken into gemini births between 1968 and 1977 have shown that reduction in perinatal mortality has been obtainable from high-intensity programmes of antenatal and intranatal attention to multiparae. Perinatal mortality had accounted for 13.4%, between 1968 and 1974, and dropped to 7.4%, between 1975 and 1977. This achievement is analysed and discussed. More improvement may best be expected from earlier detection of gemini pregnancy and earlier action of intensive care.

79-1-24 EMOG-37-379

BED REST IN TWIN PREGNANCY: IDENTIFICATION OF CRITICAL PERIOD AND IT COST IMPLICATIONS

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St. Francis Hospital, Peoria, Illinois
American Journal of Obstetrics and Gynecology (1979) 134:23–29

Since twin pregnancies often result in poor perinatal outcomes, many physicians advise prolonged bed rest. Recommendations concerning the timing of bed rest conflict and are made with little assessment of costs. This review of twin pregnancies in the North Central Illinois perinatal region established that twins are most vulnerable if they are born between 27 and 34 weeks' gestation. If bed rest is to be imposed, it probably should be timed so as to influence this vulnerable period. Intervention (bed rest inthe hospital from 27 to 34 weeks' gestation) would cost between $5,720 and $6,909 per twin pregnancy, whereas nonintervention (intensive care nursery charges for infants born before 34 weeks' completed gestation) would cost $1,689 per twin pregnancy. Before intervention can be universally advocated and costs of this magnitude incurred, a prospective controlled trial to determine the efficacy of bed rest in twin pregnancy is mandatory.

79-1-25 EMOG-37-652

EXTRAMEMBRANOUS PREGNANCY IN TWIN GESTATION

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Department of Obstetrics and Gynecology, Hillel Yaffe Memorial Hospital, Hadera, Israel
Obstetrics and Gynecology (1979) [Supplement]:345–365

An unusual case of extramembranous development of 1 infant in a twin pregnancy is described. The pregnancy was associated with the intermittent loss of liquor and a bloody discharge starting at the 26th week of gestation. Spontaneous delivery occurred at the 32nd week of gestation; the first infant was delivered by vertex and the second by breech presentation. The first infant was normal, but the second infant, who died shortly after delivery, had most of the external features of dysplasia renofacialis. (Potter facies). The gestation was diamniotic, dichorionic, and with a single placenta, but the side of the affected twin was markedly circumvallate, with short, thick membranes that covered nor more than 10% of the infant.

79-1-26 EMOG-37-77

ESTIMATION OF PLACENTAL LEUCINE AMINOPEPTIDASE IN ABNORMAL PREGNANCY SERA

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Acta Obstetricia et Gynaecologica Japonica (1979) 31:493–498

Estimation of placental leucine aminopeptidase (P-LAP) was carried out on abnormal pregnancy sera in order to assess the clinical usefulness of such laboratory studies. Pregnant women with twins exhibited high P-LAP values. Decreased or unchanged levels were found in 5 patients with severe preeclampsia followed by intrauterine fetal death, and in 4 out of 6 patients with spontaneous abortion. In all 5 patients with severe preeclampsia and 3 out of 5 patients with mild preeclampsia, the P-LAP values were rather low. In all 6 patients with threatened abortion followed by full term delivery, a falling tendency of the P-LAP level was observed at the time of vaginal bleeding. There was no singificant difference in serum P-LAP activity between normal and molar pregnancies until the 15th week of gestation. After the 16th week of gestation, however, the values in the case of hydatidiform mole were clearly lower than those in normal pregnancy. Extremely low values were noted in cases of trophoblastic tumor. It was evident from the authors' study that increased P-LAP values were indicative of adequate placental function, whereas decreased or unchanged levels indicated placental dysfunction with an increased risk to the fetus. However, serial sampling is almost always required to confirm the diagnosis.

79-1-27 EMHG-25-263

THE EFFECTS OF CHORION TYPE ON NORMAL AND ABNORMAL DEVELOPMENTAL VARIATION IN MONOZYGOUS TWINS

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American Journal of Medical Genetics (1979) 4:147–156

To determine the effects, if any, of chorion type on normal and abnormal developmental variation in monozygous (MZ) twins, we tested the hypothesis that disparate environments that are related to chorion type have no effect on this variation. The parameters studied included congenital anomalies and dermatoglyphics (total ridge count and right-left asymmetry with the exception of total ridge count, analyses of these data failed to reject the null hypothesis. Dichorionic MZ twins had a significantly greater within-pair variation than monochorionic MZ twins for total ridge count. In summary, then, these data could offer little support to prior speculation that monochorial placentas may present less favorable environments for fetal development.

79-1-28 EMMG-25-573

SONAR CEPHALOMETRY IN TWINS: A TABLE OF BIPARIETAL DIAMETERS FOR NORMAL TWIN FETUSES AND A COMPARISON WITH SINGLETONS

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Department of Obstetrics and Gynecology, University of Texas Southwestern Medical School, Dallas, Texas
American Journal of Obstetrics and Gynecology (1979) 135:727–730

In 123 normal twin pregnancies, 589 biparietal diameter (BPD) measurements wer obtained between 16 and 40 weeks' gestation and mean values for each week were computed. A table of BPDs for normal twin pregnancies based on these data is proposed. Mean twin BPDs were consistently smaller than those of

singletons, the difference averaging 3.5 mm between 16 and 40 weeks' gestation. The development of a twin BPD table now permits a more accurate assessment of twin gestational age and fetal growth.

79-1-29 EMOG-38-2126

EFFECT OF LONG-TERM SALBUTAMOL TREATMENT OF RENIN-ALDOSTERONE SYSTEM IN TWIN PREGNANCY

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Acta Obstetricia et Gynecologica Scandinavica (1979) 58:447–451

Plasma renin activity (PRA), urinary aldosterone excretion (dU-Aldo), urinary electrolytes (dU-Na, DU-K) and plasma progesterone were studied weekly in 22 women with twin pregnancies for three weeks whilst on salbutamol therapy (= 8 mg three times daily) in hospital. Fifteen patients in this group were treated with diuretics for on an average six weeks and the therapy continued. All the patients except three were treated also with depot-formed oxyprogesterone during the study. As an additional control group ten twin pregnant women without any drug therapies were studied. The mean level of PRA in twin pregnancy before beta-sympathomimetics was equal to that of the same phase (the 32nd week) of normal pregnancy. On the second day of the treatment the PRA levels was threefold ($p<0.001$) and later on twofold ($p<0.05$) when compared with the level before the treatment. Before betasympathomimetics the mean level of dU-Aldo was in twin pregnancy already higher than in normal pregnancy ($p<0.01$). During the treatment dU-Aldo increased within a week ($p<0.05$-$p<0.01$) and a positive correlation between PRA and dU-Aldo was found ($p<0.01$). A decrease in dU-Na and an increase in dU-K were found ($p<0.05$), corresponding to the increased effect of aldosterone. The increased levels of progesterone and aldosterone in twin pregnancy agree with earlier suggestions concerning the importance of progesterone in the secretion aldosterone during pregnancy. The stimulating effect of betasympathomimetics, however, leads to a renin-mediated secondary aldosteronism and therefore tend also to cause hypokalemia.

79-1-30 EMOG-37-928

CONTINUATION OF ABDOMINAL PREGNANCY COMPLICATED BY PREECLAMPSIA THREE WEEKS AFTER BIRTH OF AN INTRAUTERINE TWIN

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International Journal of Gynaecology and Obstetrics (1979) 16:324–327

A case of heterotopic pregnancy in a 22-yr-old multigravida is presented. The extrauterine baby was delivered alive three weeks after the intrauterine pregnancy had ended at term in spite of an associated preeclampsia. The inhibition of lactation resulting from continuation of the extrauterine pregnancy resulted in marasmus for the first baby. The implications and especially the etiology of preeclampsia occurring in extrauterine pregnancy are discussed.

79-1-31 EMOG-37-79

PROGNOSTIC AND THERAPEUTIC IMPLICATIONS OF THE ANTENATAL CARE OF MULTIPLE PREGNANCIES

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Geburtshilfe und Frauenheilkunde (1979) 39:447–456

From January 1967 to April 1978, 175 twin deliveries occurred among 19.935 deliveries (.88%). In comparison to the literature, a low perinatal mortality of 4.57% (adjusted 2.84%) was noted. The reason for the 3 to 5 fold increase in perinatal mortality compared to singleton pregnancies was investigated. Review of the records showed conditions specific for twin pregnancies. The treatment necessary to improve the prognosis for twin pregnancies was discussed. It is suggested that a perinatal mortality of 2% for twin pregnancies can be achieved with intensive antenatal care for twin pregnancies.

79-1-32 EMOG-38-511

MULTIPLE BIRTHS IN FORMER ORAL CONTRACEPTIVE USERS

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British Journal of Obstetrics and Gynaecology (1979) 86:557–562

Multiple births were studied in a cohort of 2953 former oral contraceptive users and 13,630 controls, all the women were interviewed post partum. There were 238 multiple birth, a rate of 14.4/1000 deliveries. Former oral contraceptive users had 13.5/1000 sets of multiple births compared to 14.5/1000 in the controls. When women who had received treatment for anovulation were excluded, these rates were 11.1 and 12.7/1000 respectively, a difference which is not statistically significant. There was, however, a significant deficit of multiple births among the small group of former pill users who were underweight in relation to their height at the time of conception. Multiple births were also increased after stopping sequential pills and preparations containing high doses of oestrogen, and there was an excess of multiple births following breakthrough pregnancies. These findings, although statistically significant, are based on small numbers, and require confirmation from other studies.

79-1-33 EMOG-36-2637

THE OBSTETRICAL MANAGEMENT OF CONJOINED TWINS

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Obstetrics and Gynecology (1979) 53 [Supplement]:675–725

A pair of conjoined twins (thoracopagus) was delivered abdominally after antepartum diagnosis. Obstetrical planning is more likely to be successful with antepartum diagnosis, which can be done only if the possibility of conjoining is considered with each twin gestation. Once a twin gestation is suspected, ultrasonography should be performed for confirmation. Conjoined twins should be suspected in a gravid mother with multiple gestations and an abnormal fetal attitude. When the images cannot be separated on ultrasonography, amniography examination, using a double contrast medium of oil-water, should demonstrate dye in the gastrointestinal tract and a union between the twins, as well as establish the presence of a monoamniotic sac. Because of increased fetal morbidity and mortality of vaginal delivery in monoamniotic twins, even if not conjoined, elective cesarean section at term will ensure the best chance for fetal survival.

79-1-34 EMOG-38-400

ACUTE POLYHYDRAMNIOS: A COMPLICATION OF MONOZYGOUS TWIN PREGNANCY

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British Journal of Obstetrics and Gynaecology (1979) 86:849–853

Eight patients with acute polyhydramnios were encountered in 31,103 pregnancies, an incidence of 1 in 3888. All patients with acute polyhydramnios had monozygous twin pregnancies and 14 of the 16 infants were normal. The condition occurred in the second trimester and usually ended in premature delivery within a few days. The perinatal mortality was 100% and accounted for 14.9% of the perinatal mortality in twins.

79-1-35 EMHG-25-859

AMNIOCENTESIS IN PRENATAL DIAGNOSIS OF GENETIC DISORDERS IN TWIN PREGNANCIES

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Zeitschrift fur Geburtshilfe und Perinatologie (1979) 183:429–433

In 14 twin pregnancies amniocentesis was performed for prenatal detection of genetic disorders. The indications, technique of amniocentesis under control of ultrasound, results and the outcome of pregnancies are described. In all cases with two amniotic sacs a separate amniocentesis was possible. The prenatal diagnosis was always proved after delivery.

79-1-36 EMHG-24-2386

GENETIC AMNIOCENTESIS IN MULTIPLE PREGNANCY

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Department of Radiology, Division of Ultrasound, University Hospital, San Diego, California
Journal of Clinical Ultrasound (1979) 7:208–210

Eleven cases of twin pregnancy presenting for genetic diagnosis in the second trimester are reported. In all 11 cases, a correct chromosomal diagnosis was made on each of the twins. The technique used required only ultrasound and Evan's blue dye for direction of the amniocentesis. Amniography was not performed. The technique used is described in detail, and its advantages over more standard technique are described.

79-1-37 EMHG-25-863

GENETIC AMNIOCENTESIS IN TWIN PREGNANCIES

British Medical Journal (1979) 2:1455–1456

The risk of fetal abnormality in twins is more than double the risk in singletons, and in twin pregnancies the obstetrician needs to obtain amniotic fluid from each sac. On examination with ultrasound the diagnosis of twins may be overlooked, but the membrane interface separating the sacs can usually be seen with a compound static B ultrasonic scan once the diagnosis has been made. The needle can then be inserted on each side of the membrane. When the membrane cannot be seen clearly, the fetal bodies should be lined up in a single plane and the needle inserted on the side of each fetus furthest from the other twin—one sac overlaps the other completely only rarely. Sometimes differences in fetal sex or polymorphic chromosome markers will confirm that both sacs have been tapped. A dye may be injected after the first amniocentesis to detect whether the sac is penetrated again, but the safety of this procedure has been questioned. With the help of sonar double amniocentesis was performed successfully in five of six pairs of twins discovered before amniocentesis in the first 786 women investigated at Johns Hopkins Medical Center, Baltimore. The experience of a large centre in Britain during 1977 and 1978 was less encouraging. Thirteen of 31 pairs of twins remained undiagnosed at the time of amniocentesis; most but not all were from hospitals that had recently acquired ultrasound. Of the 15 women with known twin pregnancies subjected to amniocentesis, the results in two turned out to be wrong: and in a further three cases only one amniotic sac could be tapped. The problems do not end with the technique of double amniocentesis. Transfer of α-fetoprotein from one amniotic sac to the other may cause difficulties in the diagnosis of fetal neural tube defect. Suprisingly little attention appears to have been paid to the counselling problems associated with genetic amniocentesis in twin pregnancies. This deficiency can now be remedied. Since the risks of fetal abnormality before amniocentesis and when only one twin can be tested have been calculated and must be studied carefully before attempting genetic counselling. Particular difficulties arise when the fetuses are found to be discordant, one being affected and the other normal. The probability of discordance is actually greater than the probability that both fetuses will be affected. Necessarily, when only one fetus can be tested the risk of abnormality on the other fetus remains high. Counselling should always precede genetic amniocentesis, but to avoid confusion a discussion of twins need not be included at the initial interview unless there is a strong family history of twinning. When twins are discovered the couple should be informed of the increased estimate of risk of fetal abnormality and of the need for double amniocentesis.

79-1-38 EMHG-24-709

GROWTH OF THE FETUS

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Nuffield Institute of Medical Research, Oxford, England
British Medical Bulletin (1979) 35:137–144

During the last 20 years our knowledge of the factors associated with abnormal fetal growth leading to the syndrome of intra-uterine growth retardation has increased considerably. Growth retardation is more common in cases of maternal malnutrition, hypertension and pre-eclampsia, also in young primigravidae, in low socioeconomic groups and in association with maternal smoking and alcohol and heroin consumption (Warshaw, 1978). At the same time ultrasonic methods for defining fetal growth patterns have been developed. Further improvements of ultrasonic imaging techniques are likely to lead to an even better description of both normal and abnormal fetal growth. In addition to head and trunk dimensions, measurements of thigh circumference and the growth of the kidney would be rewarding. Equally more wide-spread use of ultrasound in pregnancy might improve the detection of the fetus at risk, but it needs to be shown that this is superior to traditional methods of diagnosis. Experimental growth retardation leads to changes in oxygen tension, nutrients and hormones similar to those described for the growth-retarded human fetus. In sheep in which serial samples are possible these changes were present for some weeks before delivery. Most of the changes result in delays in development, but the earlier increase in plasma cortisol suggests that acceleration of maturational changes is possible. Whether this leads to permanent effects, say on adrenal response to 'stress' later in postnatal life, has not been determined. Further experimental work needs to be undertaken to define which of the changes lead to altered fetal growth and whether these can be manipulated to restore normal fetal growth. Perhaps hazardous procedures, such as intra-uterine feeding or maternal infusions designed to correct deficits suspected to be present in the human fetus, should be withheld until a more clear understanding of the problem of growth retardation has been obtained.

79-1-39 EMHG-24-2376

GESTATIONAL OUTCOME OF CLOMIPHENE-RELATED CONCEPTIONS

E.Y. Adashi, J.A Rock, K.C. Sapp, et al
Division of Reproductive Endocrinology, Department of Gynecology and Obstetrics, Johns Hopkins University School of Medicine, Baltimore, Maryland
Fertility and Sterility (1979) 31:620–626

A nonconcurrent prospective analysis is made in an attempt to evaluate the gestational fate of clomiphene-related conceptions (study series, n = 86). This latter series was contrasted with a series of pregnancies following bilateral ovarian wedge resection (BOWR) (n = 51) in a comparative analysis of gestational outcome event rates. Post-therapy follow-up was available for varying time spans of up to 15 years. A 12.8% twinning rate constituted the single most important complication of clomiphene therapy, resulting in measurable increments in perinatal morbidity and mortality rates. The observation of a 26.5% spontaneous abortion rate would seem to suggest that clomiphene-related conceptions are at little or no more risk for spontaneous abortion than would have been expected from the infertile population under discussion. A 3.1% incidence of post-clomiphene birth defects was not increased as compared with commonly quoted rates for the population at large. The corresponding incidence rates of twinning, spontaneous abortion, and birth defects for the BOWR series were 0%, 21.6% and 0%, respectively.

79-1-40 EMOG-37-318

THE MORPHOLOGY OF BLOOD CIRCULATION IN TWIN PLACENTAS

T. Kowalczyk and M. Szpakowski
Lodz, Poland
Ginekologia Polska (1979) 50:209–215

Macroscopic studies of 100 placenta circulatory systems were performed in 50 placentas from twin gestations. These were compared with 100 placenta circulatory systems from single pregnancies. In the twin placentas all types of cord insertion were observed. The most frequent types were juxtamarginal (47%) and marginal (33%). In single placentas the most frequent type of cord insertion is the juxta-marginal and medial (41 and 33% respectively). The umbilical arteries in twin placentas anastomoses either through a single uniting branch (89%) or form a common trunk (11%). Other types of anastomoses were observed in single pregnancy placentas only. In 8 twin placentas anastomoses of both arterious systems were seen, which seems to be a positive proof of monozygotic twin pregnancy. In twin placentas in 50% of cases a mixed type of course and branching of the arteries was found, in 33% it was dispersed type and in 17% magistral type. In single placentas the mixed and dispersed types were equally frequent

(41% each) and the magistral type was represented in 18% of studied specimens. In twin as well as in single placentas the umbilical vein arose from two venous trunks, it was rarely composed from 3 or 4 trunks. The borderlines between the two vascular systems in twin placentas were provided by arteries and veins from the same systems.

79-1-41 EMOG-38-1010

PROLACTIN RESPONSE TO THYROTROPIN-RELEASING HORMONE IN NORMAL AND COMPLICATED LATE PREGNANCIES

S. Kivinen, O. Ylikorkala, and M. Puukka
Department of Obstetrics and Gynecology, University of Oulu, Finland
Obstetrics and Gynecology (1979) 54:695–698

Maternal serum prolactin level (PRL) was determined with radioimmunoassay in normal and complicated late pregnancy. The mean basal PRL levels were not statistically different among normal (179.3 ng/ml), preeclamptic (169.7 ng/ml), hypertensive (171.4 ng/ml), twin (194.8 ng/ml), or diabetic pregnancies (134.4 ng/ml), although 3 of 17 diabetic women had abnormally low PRL levels. The PRL response to 200 μg of intravenously administered thyrotropin-releasing hormone (TRH) was investigated and found similar in normal, preeclamptic, hypertensive, and twin pregnancies. There was no response to TRH in 2 of 3 diabetics with a low basal PRL level. One of these diabetic patients experienced an unexplained intrauterine death 4 weeks later; the other delivered term infants, 1 of whom died of respiratory distress syndrome (RDS). These preliminary results suggest that low basal PRL levels and unresponsiveness to TRH may be related to a poor fetal or neonatal prognosis in diabetic pregnancies.

79-1-42 EMPPS-42-2791

THE RELATION BETWEEN MATERNAL PLASMA ALPHA-FETOPROTEIN AND BIRTH WEIGHT IN TWIN PREGNANCIES

D.J.H. Brock, L. Barron, M. Watt, and J.B. Scrimgeour
Department of Human Genetics, Edinburgh, Scotland
British Journal of Obstetrics and Gynaecology (1979) 86:710–712

In the course of routine screening for neural tube defects, maternal plasma alpha-fetoprotein (AFP) was measured between 15 and 23 wk of gestation in 64 twin pregnancies. Women with AFP levels more than twice the median for singleton pregnancies gave birth to infants with significantly decreased birth weights. Women with AFP less than the median also tended to produce twins with decreased birth weights. The distribution of gestations at delivery suggested that in twin pregnancies low AFP values gave an early warning of growth retardation while high values signal possible premature delivery.

79-1-43 EMOG-37-1241

TRAUMATISM AND PREGNANCY. A STUDY OF ONE CASE

G. Bosq, C. Berger, M. Vandooren, et al
Unite Grossesses a Risques, Department de Clinique Gynecologique et Obstetrique, CHU Bretonneau, Tours Cedex, France
Revue Francais de Gynecologie et Obstetrique (1979) 74:427–428

A woman 24 weeks pregnant was the victim of an automobile accident. The clinical and radiological examination showed a complex fracture of the pelvis, a twin pregnancy in the breech position (the fetuses had died) and the setting in, despite intensive resuscitation of a state of secondary shock. Close collaboration between the obstetrician and surgeon in order to perform at the same time the extraction of the fetus and treatment of the visceral lesions, is desirable in all cases of complete fracture of the pelvis, during the second part of pregnancy, whether gestation is continuing or arrested. The death of the fetus is linked here to the severe deceleration that caused a return shock of the fetal heads against one another.

79-1-44 EMHG-24-1554

A STUDY OF BIRTH WEIGHT, PLACENTAL WEIGHT AND MORTALITY OF TWINS AS COMPARED TO SINGLETONS

O.P. Bleker, W. Breur, and B.L. Huidekoper
Department of Obstetrics and Gynaecology, University of Amsterdam, The Netherlands
British Journal of Obstetrics and Gynaecology (1979) 86:111–118

A study was made of 1655 sets of twins born between 1931 and 1975 in two clinical centres. Compared to singletons, twins were born three weeks earlier, weighed less at birth from 33 weeks to term and had smaller placentae from 21 to 22 weeks to term. The influence on birth weight of sex was smaller in twins, the influence of parity greater. Because, compared to singletons, lower placental indices were found in twins up to 37 to 38 weeks, the conclusion is drawn that the retardation of growth in twins is to some extent due to the placenta itself. When singletons and twins of the same gestational age were compared, the mortality was found to be similar, somewhat lower in twins up to 37 to 38 weeks and higher afterwards. Monochorial twins were found to be born earlier, weigh less at birth and have a higher mortality than dichorial twins. Placental weight were not different and the conclusion is drawn that the retardation of growth in monochorial twins is to some extent due to the higher incidence of marginal and velamentous insertions of the umbilical cord associated with lower birth weights.

79-1-45 EMOG-38-1327

PERINATAL MORTALITY IN TWIN PREGNANCIES

H. Kucera, E. Reinold, and P. Schonswetter
I Frauenklinik, Universität aus Wien, Austria
Fortschritte der Medizin (1979) 97:2026–2031

162 twin pregnancies between 1969 and 1977 have been analysed (1969–1974 = group I; 1975–1977 = group II). It was found that the mean risk factors of twin gravidity are the high rate of babies born before term, the high rate of operative deliveries and the high rate of perinatal mortality. The twin pregnancy should be diagnosed early. This allows the possibility of prophylactic therapy of onset of labour before term. According to our observations the difference in mortality rates between the first and the second group is very high (13.3 in comparison to 5.5%). The management of twin pregnancies as a high risk delivery with continuous fetal monitoring has doubled the number of indications for caesarean section. The essential problem of twin pregnancy seems to be the high rate of premature deliveries. Therefore an adequate increase of the legal antenatal and postnatal maternal protection period is emphasized.

79-1-46 EMOG-37-440

PERINATAL DEATHS IN TWIN PREGNANCY. A FIVE YEAR ANALYSIS OF STATEWIDE STATISTICS IN MISSOURI

A.L. Medearis, H.S. Jonas, J.W. Stockbauer, and H.R. Domke
Department of Obstetrics and Gynecology, Stanford University Medical School, Santa Clara Valley Medical Center, San Jose, California
American Journal of Obstetrics and Gynecology (1979) 134:413–421

Analysis of computer stored State of Missouri birth and death records of over a 5 year period revealed 3,594 twin pregnancies (1.02% of all pregnancies), which accounted for 10.1% of the perinatal deaths. The mean birth weight according to weeks of gestation was computed for the pregnancies with no complications noted prior to labor and the perinatal mortality rate was determined. Complications of pregnancy were evaluated. Low birth weight appears to be the major factor in the elevated perinatal death rate in twin pregnancy, with a significant elevation of the perinatal death rate noted with labor prior to 36 weeks, any episode of hemorrhage, or premature rupture of membranes. A more liberal use of cesarean section currently shows no effect in altering the perinatal mortality rate. Programs are suggested to increase early detection and appropriate consultation and referral of multiple pregnancies in a statewide comprehensive effort to decrease the perinatal mortality rate in twin pregnancy.

80-1-02 EMHG-25-2392

A STUDY OF SPONTANEOUSLY ABORTED TWINS

J.E. Livingston and B.J. Poland
Department of Obstetrics and Gynecology, Faculty of Medicine, University of British Columbia, Vancouver, Canada
Teratology (1980) 21:139–148

Fifty-three pairs of twins were obtained during examination of 1,939 spontaneously aborted complete embryos and fetuses. Therefore, the rate of twinning in pregnancies which spontaneously aborted was about 1 in 35. The spontaneous twin abortions consisted of 25 sets of twin embryos, 26 sets of twin fetuses, and two sets in which one was an embryo and one was a fetus. It was possible to determine the

zygosity in 37 pairs. The ratio of monozygotic to dizygotic was 17.5:1. About 88% of the twin embryos and 21% of the twin fetuses were abnormal. These abnormality rates were similar to those observed in the overall study of the abortuses. The data on spontaneously aborted twins were compared with data on liveborn twins. The results suggest that twinnng, particularly MZ twinning, occurs more frequently than has been thought, based on newborn data, and that embryonic and fetal mortality is much higher in twins than in singletons.

80-1-03 EMDBT-20-2027

INTRAUTERINE GROWTH OF TWINS. A RETROSPECTIVE ANALYSIS

A. Fenner, T. Malm, and U. Kusserow
Division of Neonatology, Lubeck Medical School, Lubeck, West Germany
European Journal of Pediatrics (1980) 133:119–121

In a retrospective study of 150 twins born between 1970–1977, birth weight, length, and head circumference was plotted against gestational age. In comparison to singletons, all 3 parameters were low normal. While length and head circumference values follow the growth pattern of singletons, prenatal birth weight shows a progressive decline toward maturity. The intrauterine growth pattern of twins resembles that of intrauterine growth retardation of singletons.

80-1-04 EMOG-38-2125

PROBLEMS IN ULTRASONIC MONITORING OF MULTIPLE PREGNANCIES

B. Milne
Obstetrics and Gynaecology, Leicester Royal Infirmary Maternity Hospital, Leicester, England
British Journal of Radiology (1980) 53:85–86

Ultrasound would seem to be an ideal method of ensuring the early diagnosis of multiple pregnancy and also affords an opportunity to measure individual fetal growth thereafter. In a programme to study multiple pregnancies the majority were diagnosed early to allow adequate regular monitoring by ultrasound. Unexpected problems were encountered however and the failure rate to obtain satisfactory fetal biparietal measurements was almost three times that in singleton pregnancies.

2. TWIN DEVELOPMENT AND TWIN RESEARCH IN DEVELOPMENTAL STUDIES

78-2-10 EME-42-2003

STUDIES ON THE CHANGES OF SERUM FSH, LH AND PROLACTIN CONCENTRATIONS IN PUBERTAL TWINS

T. Wasada, Y. Akamine, H. Oma, et al
III Department of Internal Medicine, Faculty of Medicine, Kyushu University, Fukuoka, Japan
Endocrinologia Japonica (1978) 25:575–582

A cross-sectional study was undertaken to investigate the correlation of serum gonadotropin levels with physical signs of puberty and also to assess the role of genetic factors in the onset and progression of puberty. Serum concentrations of FSH, LH and prolactin were measured by double antibody radioimmunoassay in 195 monozygotic and 59 dizygotic twin pairs during the years of puberty (12 to 15 years). In boys serum FSH, LH and prolactin concentrations showed a tendency to increase steadily along with bone ages (9 to 17 years). The size of testis correlated fairly well with serum LH levels and to some extent with FSH. In the pubic hair stage, a significant difference was observed in serum FSH and LH levels between the groups of PH 1-2 and PH 3<. In girls, serum FSH levels significantly increased in the early phase of puberty and no further increase occurred thereafter, while serum LH and prolactin levels showed an increasing trend with the advance of bone ages to adult levels. As to breast development, serum LH levels alone increased during the early stages of development. When a comparison was made between pre- and post-menarchial groups or between pubic hair stages, a significant difference was present only in LH levels in either comparison. From a viewpoint of twin zygosity, the intrapair differences of serum gonadotropin levels were compared between monozygotic and dizygotic pairs of twins. Serum

LH levels in both sexes and serum FSH in girls of monozygotic pairs of twins showed a significant within-pair similarity compared with dizygotic pairs of twins. Since serum LH levels appeared to have a close relationship with the advancement of puberty in both sexes, these findings suggest that genetic factors play an important role in the onset and progression of individual puberty.

79-2-04 EMHG-24-2723

TWIN GROWTH: INITIAL DEFICIT, RECOVERY, AND TRENDS IN CONCORDANCE FROM BIRTH TO NINE YEARS

R.S. Wilson
University of Louisville School of Medicine, Kentucky
Annals of Human Biology (1979) 6:205–220

Height and weight measurements for a large sample of twins from birth to nine years were used to construct growth curves for this period. Compared to singletons, twins were substantially smaller at birth, particularly for weight (30% deficit), but the latter showed a dramatic recovery in the first 3 months, then smaller increments until finally reaching the singleton norms at 8 years. Height, while less depressed at birth (17% deficit), was also slower to recover during the first year, then moved in comparable increments with weight until reaching parity with singletons. Prenatal influences on birth size were largely dissipated as each twin converged on his/her genetic growth curve. Monozygotic twins became progressively more concordant with age ($R = 0.94$ for height), while dizygotic twins became less concordant ($R = 0.49$). Ten monozygotic pairs with large birth-weight differences (>750 g) were examined at 6 years; the smaller twin was still significantly lighter ($P < 0.10$), but not significantly lower in IQ. The results suggested a high degree of buffering for intelligence against the effects of nutritional deficit in the prenatal period. Some factors in addition to placental anastomosis are suggested as a possible basis for long-term size differences in monozygotic pairs.

79-2-05 EMPPS-43-2671

THREE-YEAR-OLD TWINS AND SINGLETONS: A COMPARISON OF SOME PERINATAL, ENVIRONMENTAL, EXPERIMENTAL, AND DEVELOPMENTAL CHARACTERISTICS

J.McK. McDiarmid and P.A. Silva
Dunedin Multidisciplinary Child Development Study, Department of Paediatrics, University of Otago, Dunedin, New Zealand
Australian Paediatric Journal (1979) 15:243–247

Twenty-four 3-year-old twins were compared with 1013 singletons on an array of perinatal, experiential, and developmental parameters. More mothers of the twins had moderate hypertension during pregnancy. The twins experienced significantly more birth hypoxia, had reduced gestational ages, lower birth weight, and more neonatal apnoea than the singletons. The twins had fewer experiences as preschoolers than the singletons. They were slower to smile, talk, feed themselves with a spoon, and attain bladder control. The twins were shorter, lighter, had smaller head circumferences, and were about 3 months slower than the singletons in both receptive and expressive language development. The 24 twins were matched with singletons with similar perinatal histories; gestational age and birth weight, and compared for developmental characteristics. The only significant difference remaining was the age at which the children first talked. By age 3 years, language development was no longer significantly delayed. The results interpreted as suggesting that developmental disadvantages in preschool twins result from perinatal rather than postnatal disadvantages.

79-2-06 EMHG-24-2561

CONGENITAL HYPOALDOSTERONISM. THIRTEEN YEAR FOLLOW-UP IN IDENTICAL TWINS

D. Katznelson, J. Sack, Z. Kraiem, and B. Lunenfeld
Department of Pediatrics, Chaim Sheba Medical Center, Tel Hashomer, Israel
Hormone Research (1979) 11:22–28

Identical male twins suffering from congenital hypoaldosteronism due to a rare adrenal enzyme deficiency between corticosterone and aldosteronism were followed-up from birth till their present age of 13 years.

The symptoms of salt loss disappeared and normal growth rate resumed following treatment with DOCA and salt supplementation. Discontinuation of mineralocorticoid administration at the age of 7 years resulted during a 5 year period in a marked decline in their growth rate. Laboratory data revealed a persistent, albeit less pronounced metabolic impairment. Mineralocorticoid administration was resumed and the twins entered normal puberty and increased their growth rate, emphasizing their need for continued mineralocorticoid administration to maintain adequate growth rate and development.

79-2-07 EMHG-25-2069

HEREDITARY DETERMINANTS OF MANUAL TORQUE

A.P. Matheny, Jr.
Child Development Unit, Department of Pediatrics, School of Medicine, University of Louisville, Kentucky
Perceptual and Motor Skills (1979) 49:751–755

Data from a longitudinal study of twin children and siblings, 155 girls and 134 boys (aged 4 to 9 yr.), on a torque test confirmed that during this age period manually produced circling patterns change from clockwise to counterclockwise orientation. A genetic influence is suggested.

3. TWIN RESEARCH IN COGNITIVE STUDIES

78-3-07 EMHG-24-1272

INTELLIGENCE AND EMOTIONAL FEATURES OF TWINS

S. Cmelic
Med. Psihol., Psihijat, Boln., Ugljan Yugoslavia
Psihijat. Danas (1978) 10:371–375

Two experimental groups consisting of 18 pairs of identical twins and 21 pairs of fraternal twins aged 14–15 yr were tested by means of a revised series of Beta and Rorschach's psychodiagnostic tests (Harrower-Erickson's variant). The control group consisting of 20 pairs of randomly selected boys of the same age was also tested by the same psychological tests. The following was confirmed: that the concordance in the intelligence and emotional features of both experimental groups is higher than that of the control group; that the concordance in the intelligence of experimental groups is higher than that in emotional features; as a rule, the concordance in the intelligence and emotional features is highest in identical twins, lower in fraternal twins and the lowest in randomly selected pairs; that the IQ is the lowest in identical twins, somewhat higher in fraternal twins and the highest in the group of randomly selected pairs; and that emotional lability is the highest in identical twins, lower in fraternal twins and the lowest in randomly selected pairs. The latter can be explained as a consequence of the isolated way of life spent by twins. Finally, the author emphasizes that Rorschach's psychodiagnostic test has proved its validity in measuring emotionality of twins and of men in general.

79-3-04 PA-64-11445

HERITABILITY OF INTELLIGENCE

L. Van Valen
University of Chicago
Journal of Biological Psychology (1979) 21:17

Discusses a problem with studies of environmental vs hereditary determinants of intelligence: some dizygotic twins are raised as monozygotic twins. A method is given for correcting for the resulting underestimation of heritability.

79-3-05 EMHG-25-1794

INTRA-PAIR SIMILARITY IN IQ OF MONOZYGOTIC AND DIZYGOTIC MALE TWINS AT 12 AND 18 YEARS OF AGE

S. Fishbein

Department of Educational Research, Stockholm Institute of Education, Stockholm, Sweden
Annals of Human Biology (1979) 6:495–504

Verbal and inductive test results have been collected for a group of male twins in grade 5 at 12 years of age and at enrollment to military service at 18 years of age. MZ twin pairs tend to get progressively more concordant for both verbal and inductive ability from age 12 to 18. DZ twins, on the other hand, get progressively more concordant for inductive ability, while they tend to get less concordant for verbal ability. The results are interpreted with reference to a model taking heredity—environment interaction into account. The discordant trend found when comparing intra-pair similarity in verbal ability for MZ and DZ twins thus seems to indicate the presence of interactional and correlational effects. For inductive ability, however, the difference between within-pair correlations for MZ and DZ twins tends to be of the same magnitude at both 12 and 18 years of age. Probably this type of test is less differentially influenced by the environments being sampled, at least under present curcumstances, when children are not specifically trained to solve the kind of items included in the inductive test. Regression effects for the two tests and possible explanations to the increase from age 12 to 18 in both MZ and DZ within-pair similarity for inductive test scores are discussed.

79-3-06 PA-64-11977

GENETIC VARIANCE IN NONVERBAL INTELLIGENCE: DATA FROM THE KINSHIPS OF IDENTICAL TWINS

R.L. Rose, E.J. Harris, J.C Christian, and W.E. Nance
Indiana University, Bloomington, Indiana
Science (1979) 205:1153–1155

Administered the Block Design subtest of the WISC to 550 members of 65 monozygotic twin kinships. To serve as a genetic guide for the analysis of block test scores, fingerprint ridge counts of the Ss were also analyzed. For both traits, familial resemblance appears to be a direct function of shared genes. The parent-offspring regression is comparable in magnitude to that between twin uncle or aunt and nephew or niece, but in the absence of shared genes, neither trait shows significant familial aggregation. The parallel pattern of results for block design and for ridge count provides evidence of significant variation in nonverbal intelligence. It is emphasized that the evidence was obtained from normal children reared in their natural homes by their biological parents.

79-3-07 PA-64-09792

THE IDENTICAL-TWIN TRANSFUSION SYNDROME AND INTELLIGENCE: A SECOND LOOK

R.W. Marsh
Victoria University, Wellington, New Zealand
British Journal of Psychology (1979) 70:413–415

Argues that H. Munsinger's (1977) data on identical-twin transfusion syndrome does not provide support for the differences he calculated. Munsinger's classification of individual cases is reexamined.

79-3-08 EMHG-23-2640

FAILURE OF THE TWIN SITUATION TO INFLUENCE TWIN DIFFERENCES IN COGNITION

S.G. Vandenberg and K. Wilson
Department of Psychology, University of Colorado, Boulder
Behavior Genetics (1979) 9:55–60

No substantial correlations were found between twin differences on the six Primary Mental Abilities (PMA) subtests and 28 questionnaire items designed to measure the degree to which twins are seen, by themselves and their mothers, to have a close relationship. Intercorrelations of the items in this 'twinness' questionnaire only modestly exceeded chance expectation. Use of stepwise multiple regression to attempt to 'predict' twin differences on the PMA subtests from combinations of the 28 indices of closeness produced no statistically significant multiple correlations. It is suggested that the twin situation may not have a significant influence on cognitive variables.

79-3-09 EMHG-25-2068

A NOTE ON THE HERITABILITY OF MEMORY SPAN

A.R. Jensen and D.Q. Marisi
Institute of Human Learning, University of California, Berkeley
Behavior Genetics (1979) 9:379–387

The heritability of performance on a digit span memory test was estimated by means of the twin method, using the correlations of teenage monozygotic and dizygotic twins. The broad heritability is estimated as $h^2=0.44$, which when corrected for attenuation is increased to 0.52. The values of h^2 determined by the same method for height and weight are 0.96 and 0.73, respectively. The MZ data show no evidence of a first-order genotype x environment interaction.

4. TWIN RESEARCH IN PERSONALITY, PSYCHOPHYSIOLOGY, AND PSYCHOPATHOLOGY

77-4-08 PA-64-12648

A STUDY ON AUTISTIC CHILDREN IN TWINS

M. Mizuno and S. Wakabayashi
Aichi Prefectural Colony Institute of Developmental Research, Kasugai, Japan
Japanese Journal of Child Psychiatry (1977) 18:235–246

Out of 415 autistic children treated at a Japanese hospital, there were 7 pairs of twins, which is a rate that is more than 3 times that for the general population. All twins were monozygous and 6 sets were male. Although these findings support the theory of genetic factors of autism, the influence of nongenetic factors should not be neglected.

79-4-06 EMPPS-42-1563

MONOZYGOTIC TWINS WITH EARLY INFANTILE AUTISM. A CASE REPORT

W.H. Wessels and M. Pompe Van Meerdervoort
Department of Psychiatry, University of Orange Free State, Bloemfontein, South Africa
South African Medical Journal (1979) 55:955–957

A pair of monozygotic twins were born 3 weeks prematurely. They were concordant for early infantile autism (EIA) and developed at a similar rate until the age of 4 years, when one of them spontaneously improved. The other twin, who has suffered infrequent epileptic seizure since the age of 6 days, is still grossly autistic. The results of neurological examination and the electro-encephalograms of both are within normal limits. The role of genetic factors in the aetiology of autism is stressed, although these factors were not all important in the further development of these twins.

79-4-07 EMPPS-42-1550

AUTISTIC MENTAL STATES AND MOTHER-CHILD RELATIONSHIP

T.J. Caratelli and M. De Renzo
Istituto di Neuropsichiatria Infantile, Università degli Studi, Roma, Italy
Neuropsichiatria Infantile (1979) 214:345–360

In this paper the case of two autistic female identical twins aged two and a half is examined from a diagnostic point of view. The mother-child relationship is focused and especially the differences in the defensive manoeuvres shown by each child. The most important feature in this relationship seems to be, according to the authors, an asynchronicity of rhythms and needs either on an emotional or biological level between mother and each child. The clinical conceptualizations are supported by a close analysis of detailed clinical material and by a brief discussion of the psycho-analytical literature (with special reference to Winnicott and Tustin) on the problem of childhood autism and on the mother-child relationship.

79-4-08 EMHG-24-1088

GENETIC ASPECTS OF DEPRESSIVE ILLNESS

J. Mendlewicz
Service Psychiatrique, Hôpital Erasme, Brussels, Belgium
Annales de Biologie Clinique (Paris) (1979) 37:15–19

Depressive syndromes are a group of heterogenous mental disorders. On the basis of genetic studies, one distinguishes between bipolar and unipolar depression. Hereditary transmission varies according to the type of depressive syndrome, and is still the subject of controversy. The place of schizophrenic syndromes remains unclear in the nosology of depression.

79-4-09 PA-64-10708

PERSONALITY TRAITS AND PSYCHOPHYSIOLOGICAL REACTIONS TO A STRESSFUL INTERVIEW IN TWINS WITH VARYING DEGREES OF CORONARY HEART DISEASE

T. Theorell et al
Huddinge Hospital, Department of Social Medicine, Sweden
Journal of Psychosomatic Research (1979) 23:89–99

A series of male twin pairs aged 51–74 yrs, the majority of whom were discordant with regard to coronary heart disease (CHD)—17 monozygotic and 13 dizygotic pairs—were subjected to psychologic and psychophysiologic evaluation (i.e., Adjective Check List, Thurstone Temperament Schedule, Marlowe-Crowne Social Desirability Scale, and questions related to anxiety proneness and extraversion). None of a number of CHD-related psychologic measures differentiated significantly the "more healthy" from the "less healthy" partners. Two measures of Type A behavior as well as "muscular tension" and "impulsivity" showed evidence of genetic influence. A likely genetic influence was demonstrated over peripheral vasoconstriction, blood pressure (systolic and diastolic), and plasma growth hormone level during and after a stressful interview but not during rest. Heart rate was demonstrated to be under genetic influence both at rest and during the interview.

79-4-10 EMHG-24-220

DO THE PARTNERS OF DIZYGOTIC SCHIZOPHRENIC TWINS RUN A GREATER RISK OF SCHIZOPHRENIA THAN ORDINARY SIBLINGS

E. Essen-Moller and M. Fischer
Department of Psychiatry, University of Lund, Sweden
Human Heredity (1979) 29:161–165

An exceptionally high incidence in dizygotic co-twins of schizophrenic index cases, together with normal incidence in siblings, was reported by M. Fischer in 1973. Apart from chance fluctuation, a methodological explanation for the difference is suggested.

79-4-11 EMHG-24-2325

MONOZYGOTIC AND DIZYGOTIC TWINS DISCORDANT FOR MANIFEST SCHIZOPHRENIA

V.D. Moskalenko
II Klinik Psychiatric Institute, Moscow, USSR
Zhurnal Nevropatologii i Psikhiatraii Imeni S.S., Korsakova (1979) 79:305–312

The author described psychotic conditions of co-twins who were not seen by a psychiatrist before, in 12 MZ and 62 DZ pairs, where the probands suffered from manifest schizophrenia. Among MZ, one half of the examined patients was classified as 'mildly expressed schizophrenia' and the other as schizoid personality abnormalities. The probands of MZ pairs displayed a prevalence of slow pregressive variants of schizophrenia within the framework of both continuous and attack-life forms. DZ co-twins of schizophrenic probands according to the psychotic state formed a range of transitions from mildly expressed schizophrenia through personality abnormalities to accentuated personalities and normals.

80-4-03 EMHG-25-1261

LATERALITY IN MONOZYGOTIC SCHIZOPHRENIC TWINS: AN ALTERNATIVE HYPOTHESIS

D. Luchins, W. Pollin, and R.J. Wyatt
Laboratory of Clinical Psychopharmacology, Division of Special Mental Health Research Intramural Research Program, St. Elizabeth's Hospital, Washington, DC
Biological Psychiatry (1980) 15:87–93

Handedness in the NIMH monozygotic (MZ) schizophrenic twins was examined and compared to the report of Boklage. Both the authors' findings and Boklage's suggest the existence of a subgroup of schizophrenics characterized by abnormal lateralization and a milder form of schizophrenia. However, unlike Boklage, the authors hypothesize that this subgroup of schizophrenics is not restricted to MZ twins.

80-4-04 EMHG-25-2200

ON THE INTERPAIR DIFFERENCES IN THE ONTOGENESIS, PREMORBID STATE AND SEVERITY OF SCHIZOPHRENIA IN TWINS

V.D. Moskalenko
II Klinik Psychiatric Institute, Moscow USSR
Zhurnal Nevropatologii i Psikhiatrii Imeni S.S. Korsakova (1980) 8:78–83.

In each of the studied 124 pairs, a twin A was distinguished (the patient with manifest symptoms in the discordant pairs, or more seriously affected twin in concordant pairs) and twin B—its partner. It was demonstrated that the order of birth differences in the weight at birth and periodization of development do not correlate with the differences in the clinical expression of schizophrenia. Such unfavourable factors as asphyxia, complications during delivery and severe somatic illnesses had a certain tendency to accumulate in twin A. The most distinct correlation was found between the traits of a premorbid personality and the eventual intrapair differences in the severity of schizophrenia. In the majority of the cases twin A was more excitable in childhood, had more fears, slept worse, and had a poor appetite. Twin A, by its premorbid traits, was generally characterized by prevalent asthenic features, withdrawal signs and a more dysharmonic type of personality.

80-4-05 EMHG-25-1628

GENETIC FACTORS IN OBSESSIVE-COMPULSIVE NEUROSIS? A RARE CASE OF DISCORDANT MONOZYGOTIC TWINS

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Department of Psychiatry, Hotel Dieu Hospital, Kingston, Ontario, Canada
Canadian Journal of Psychiatry (1980) 25:167–172

There has been considerable interest in the strength of genetic predisposition to obsessive-compulsive neurosis in spite of the tendency in North America to view this disorder as entirely psychogenic. Both American and Birtish papers have remarked on the rarity of the coincidence of obsessive-compulsive neurosis and the occurrence of MZ twins. An analysis of published reports indicates that, of those cases for which both zygosity and diagnosis can be firmly established, ten are concordant and only four are discordant. Errors in previous studies that disqualify them from serious consideration include: failure of the investigators to establish zygosity with some degree of certainty; failure to distinguish between obsessive-compulsive neurosis and a mixed neurosis; and a tendency to confuse obsessive-compulsive neurosis with obsessive-compulsive personality or 'obsessive traits.' MZ female twins discordant for obsessive-compulsive neurosis are presented and their life histories are discussed. Although the twins were very similar in early childhood, their personality characteristics diverged remarkably, beginning at age 11, with the result that the symptomatic twin became shy, sensitive, cautious, conservative, and religious; whereas her asymptomatic sister became outgoing, confident, and adventuresome. The findings on psychiatric examination and on detailed psychological testing indicate that obsessive-compulsive neurosis in the affected twin was clearly a psychogenic disorder.

80-4-06 PA-64-10760

CRISIS TREATMENT OF A PREADOLESCENT WHO ACCIDENTALLY KILLED HIS TWIN

T.A. Petti and K. Wells

University of Pittsburg, Pennsylvania
American Journal of Psychotherapy (1980) 34:434–443

Describes the multimodality treatment of a preadolescent who killed his twin brother. A brief review of the literature concerning accidental homicide and a discussion of the rationale for each component employed in a multifaceted approach to treating the pathology resulting from such a tragic event are provided. Attention is drawn to the interaction of dynamically oriented psychotherapy, pharmacotherapy, family work, conflict resolution and problem solving skills, systematic desensitization, and biofeedback as they were systematically employed in a depressed boy with psychoticlike features. Methods of assessing change and making clinical decisions are depicted. The effectiveness of this approach is borne out by follow-up 14 mo later.

80-4-07 PA-64-12716

A TWIN STUDY OF SPECIFIC BEHAVIORAL PROBLEMS OF SOCIALIZATION AS VIEWED BY PARENTS

M. O'Connor, T. Foch, T. Sherry, and R. Plomin
Institute of Behavioral Genetics, University of Colorado, Boulder
Journal of Abnormal Child Psychology (1980) 8:189–199

A classical twin analysis compared intraclass correlations for 54 pairs of identical twins and 38 pairs of same-sex fraternal twins, using a revised form of C.K. Conner's (1970) Parent Symptom Rating Questionnaire. Factor analyses of this instrument yielded 12 scales corresponding to 12 principal factors; however, adequate variance and test-retest reliability were found for only 8 of the scales: Bullying, Emotional, Tense, Shy, Restless, School problems, Sleep problems, and Aches. For 7 of these 8 scales, correlations were significantly greater for the identical than for the fraternal twins. The identical twin correlations were similar to the test-retest reliabilities, suggesting that nearly all of the reliable variance for these behavioral problems was shared by identical twins. These findings suggest significant genetic influence on the development of individual differences in behavioral problems as viewed by parents.

80-4-08 PA-64-10203

THE SEPARATION-INDIVIDUATION PROCESS IN ADULT TWINS

M. Siemon
Seattle, Washington
American Journal of Psycotherapy (1980) 34:387–400

While being a twin is not the only or definitive element in personality development or emotional disturbance, twinship is fraught with psychological hazards that may produce disturbances in establishing a sense of identity. Twins are individuals before they are aware of their special relationship. As a result of simultaneous development and reactions and expectations from others, knowledge of the twinship develops, and with it comes a self-image conflict. The ultimate relationship that many twins achieve with each other is at the cost of individual identity. Emotional difficulties occur when twins who have been raised as a unit make a break in adulthood toward psychological differentiation. When the relationship between the twins is more separate and developmentally divergent, and the twins are treated as individuals from birth, they do not seem to experience the same individuation problems in adulthood. The interplay between the drive toward fusion of identity, and the opposing maturational drive toward individuation is the basis for understanding the complex symptoms of adult twins who separate.

6. TWIN RESEARCH IN PHYSIOLOGY AND ANTHROPOLOGY

79-6-02 EMHG-25-1265

AGGREGATION OF BLOOD PRESSURE IN THE FAMILIES OF IDENTICAL TWINS

R.J. Rose, J.Z. Miller, C.E. Grim, and J.C. Christian
Department of Psychology, Indiana University, Bloomington
American Journal of Epidemiology (1979) 109/5:503–511

The multiple relationships which exist within families of adult monozygotic (MZ) twins permit evaluation

of genetic and environmental variance and provide a direct test of maternal effects. Systolic blood pressure (SBP) was measured in 610 members of the families of 76 MZ twin pairs. Age and sex effects on BP were removed via a Z-transformation. Correlations for SBP were .72 for MZ twins and .23 for full siblings. Regression of offspring of single parent was .26. The husband-wife correlation was significant, but it was no higher than the resemblance of a twin to the spouse of his co-twin. Comparisons of maternal and paternal half-siblings provide no evidence of maternal influences on SBP. To evaluate whether familial resemblance of BP is mediated by body size, the original systolic pressures were adjusted by stepwise multiple regression of age, sex, height, weight and skinfold thickness. Adjusting BP for effects of body size reduced regression of offspring on mid-parent from .40 to .23. The authors conclude that familial aggregation of systolic pressure reflects additive genetic variance mediated, in part, by body size and augmented by social homogamy arising from nonrandom mating.

79-6-03 EMHG-25-648

DETECTION OF GENETIC VARIANCE IN BLOOD PRESSURE OF SEVEN-YEAR-OLD TWINS

R.J. Havlik, R.J. Garrison, S.H, Katz, et al
Epidemiology Branch, Division of Heart and Vascular Diseases, National Heart, Lung, and Blood Institute, Bethesda, Maryland
American Journal of Epidemiology (1979) 109/5:512–516

Results from twin studies in older children and adults indicate that there is significant genetic variace for blood pressure (BP). Utilizing data which were collected in 12 US university-affiliated hospitals in 1966–1973 in the Collaborative Perinatal Project, the authors sought to determine if the effects of heredity on BP variability are apparent in younger twins. BP was determined in 197 pairs of like-sexed twins at seven years of age. Significant genetic variability for diastolic blood pressure (DBP) was found in the twins, with a heritability estimate of 0.53. Systolic blood pressure results tended in the same direction but were not statistically significant. The trends were comparable for both sexes and races. These findings suggest that even at a young age substantial genetic influences on DBP variability are detectable.

79-6-04 EMPH-49-2746

MUSCLE STRENGTH AND MUSCLE CHARACTERISTICS IN MONOZYGOUS AND DIZYGOUS TWINS

J. Karlsson, P.V. Komi, and J.H.T. Viitasalo
Laboratory of Human Performance, Karolinska Hospital, Stockholm, Sweden
Acta Physiologica Scandinavica (1979) 106/3:319–325

Muscle strength and electrical activity were investigated on 31 pairs of young male and female monozygous (MZ) and dizygous (DZ) twins. The measurements included leg forces, force-time, running velocity, muscular power, maximal integrated electromyographic activity (IEMG) and chronaximetry of the quadriceps muscle group. In each parameter the intrapair variance was computed and the differences were tested between the MZ and DZ twins. The variance ratio (MZ vs DZ) was statistically significant only for muscular power confirming an earlier finding which has demonstrated a genetic component for the variable. In addition to the various performance variables several key enzymes involved in ATP turnover during muscle contraction and in glucose residue metabolism were analyzed from the muscle biopsy samples (m. vastus lateralis). A genetic component could not be observed in any of their activities or their relationships to performance variables.

79-6-05 EMHG-25-1273

GENETIC ANALYSES OF MULTIVARIATE FINGERTIP DERMATOGLYPHIC FACTORS AND COMPARISON WITH CORRESPONDING INDIVIDUAL VARIABLES

T. Reed and R.S. Young
Department of Medical Genetics, Indiana University School of Medicine, Indianapolis
Annals of Human Biology (1979) 6/4:357–362

Utilizing seven combinations of 40 fingertip variables identified with factor analysis, scores were calculated for each of the seven multivariate factors in 720 twins and 114 identical (MZ) twin pairs and their families. In comparison of variances of the factor scores in MZ versus fraternal (DZ) twins, a larger total variance was found for DZ twins, and subsequent estimates of genetic variance were not significant for two factors containing thumb variables, paralleling these surprising findings seen for each of the individual thumb variables. In comparisons of variances in the offspring of MZ twins, evidence for maternal effects was found for the thumb radial and ridge-count factor and a factor comprising the pattern type and ulnar count of the little finger, again reflecting findings seen in the individual variables comprising these factors. Multivariate pattern factors display the same findings as those individual variables comprising the factors and may provide additional genetic information over considering each variable singly.

79-6-06 EMHG-24-163

MATERNAL EFFECTS ON FINGERTIP DERMATOGLYPHICS

T. Reed, M.M. Evans, J.A. Norton, Jr., and J.C. Christian
Department of Medical Genetics, Indiana University School of Medicine, Indianapolis
American Journal of Human Genetics (1979) 31/3:315–323

Significantly larger variation between sibships within families of male MZ twins than between sibships within families of female MZ twins, indicative of maternal influences, was found for 10 of 41 dermatoglyphic fingertip variables. Of these, five were thumb-related with the effect of primarily on the thumb radial and ridge count (larger of radial and ulnar count). These same variables were previously found to have unequal variances in MZ twins of known placental type, and the results indicate maternal influences in singletons as well as twins for these variables. Although the total ridge count (TRC), previously shown to differ in MZ twins of known placental type (paralleling the thumb radial and ridge counts) did not reach significance, the trend indicated that the observed thumb changes may be reflected in the TRC as well. Little finger pattern type and ulnar counts also showed less variability in families of female MZ twins, but the interpretation is complicated by the concomitant differences in mean squares within-sibships for these little finger variables.

79-6-07 EMHG-24-165

GENETICAL STUDIES OF THE PALMAR AND SOLE PATTERNS AND SOME DERMATOGLYPHIC MEASUREMENTS IN TWINS

D. Loesch
Department of Human Genetics, Psychoneurological Institute, Warsaw, Poland
Annals of Human Genetics (1979) 43/1:37–53

The within- and between-pair mean squares and means have been estimated for dermatoglyphic patterns on finger-tips, palms and soles and compared between samples of 110 MZ and 111 DZ twins of Polish origin. Dermatoglyphic patterns have been represented by topologically significant pattern elements (loops and triradii) on finger tips, palms and soles, considered separately and in various combinations, ridge counts on finger-tips and on palms and several other palmar and sole measurements. Some genetic parameters such as: Genetic variance (G(CT)) based on within and between mean squares of the two types of twins, the within-pair variance ratio and the covariance/variance ratio in MZ twins have also been obtained for all these traits and considered in relation to differences in respect of the total and between-pair variances and means for all specified characters. The highest values of genetic parameters have been obtained for pattern intensities and ridge counts on finger-tips, considered separately or combined, for the H hypothenar loop and the axial triradii on palms, and for the majority of sole loops and triradii. The lowest values have been found for several palmar loops and measurements such as minutiae counts. These results are in respect of some pattern elements, not in agreement with the estimated heritability based on correlations between other relatives. A comparison of genetic parameters for single loops or triradii and for the various combinations indicates that some pattern elements or their combinations may be each influenced by a specific genetic system which modifies their phenotypic expression. It is believed that the

obtained results are, for some proportion of characters, clearly biased by inequality of the total variances in MZ and DZ twins.

80-6-01 EMHG-25-657

MATERNAL AGE AND DERMATOGLYPHIC ASYMMETRY IN MAN: ANOTHER LOOK

R.S. Young and T. Reed
Department of Medical Genetics, Indiana University School of Medicine, Indianapolis
Human Heredity (1980) 30/3:145–148

The effect of maternal age on the degree of bilateral asymmetry found in digital ridge counts was explored as a possible explanation for a previously detected maternal effect, where significantly less variation was observed in thumb ridge counts between the two sibships within families of female monozygotic (MZ) twins than between sibships within families of male MZ twins. Contrary to a previous report which found a tendency for ridge count asymmetry to increase with maternal age, this study could show no such relationship. It was concluded that while the exact nature of the maternal effect noted for thumb ridge counts is unclear, it is little influenced by maternal age.

80-6-02 EMHG-25-649

VARIABILITY OF HEART RATE, P-R, QRS AND Q-T DURATIONS IN TWINS

R.J. Havlik, R.J. Garrison, R. Fabsitz, and M. Feinleib
Epidemiology Branch, National Heart, Lung, and Blood Institute, Bethesda, Maryland
Electrocardiology (1980) 13/1:45–48

During a cardiovascular risk factor study, electrocardiograms were done on 355 sets of middle-aged male monozygotic and dizygotic twins. Potential genetic variability in ventricular rate and P-R, QRS and Q-T duration was investigated using classical statistical twin methodology. Significant genetically determined variability was found for ventricular rate and P-R interval. These findings suggest that heart rate and, to a lesser extent, atrial depolarization are under genetic control with 54% and 34%, respectively, of the variation among individuals explained by heredity.

80-6-03 EMHG-25-654

SERUM IgE LEVELS IN TWINS

P. Sistonen, V. Johnsson, M. Koskenvuo, and K. Aho
Center of Public Health Laboratory, University of Helsinki, Finland
Human Heredity (1980) 30/3:155–158

Serum IgE level was determined in 76 monozygous and 81 dizygous like-sexed twin pairs representing adult twins living in the Helsinki area. Monozygous twin pairs were frequently concordant with respect to elevated IgE levels, although some pairs were strikingly discordant, indicating that there is a wide range of phenotypic expression for each genotype.

80-6-04 EMHG-25-935

ON THE HERITABILITY OF SERUM HIGH DENSITY LIPOPROTEIN IN TWINS

P. Sistonen and C. Ehnholm
Finnish Red Cross Blood Transfusion Service, Helsinki, Finland
American Journal of Human Genetics (1980) 32/1:1–7

To estimate the relative contributions of hereditary vs. environmental factors in the variation of high density lipoprotein, the authors measured the concentrations of its main apoprotein components, apoprotein A-I (apo A-I) and apoprotein A-II (apo A-II), in serum samples from 65 monozygotic (MZ) and 70 dizygotic (DZ) like-sexed twin pairs. Evidence for a genetic component of variance was found for apo A-II, giving heritability (h^2) estimates of .35 and .30 for males and females, respectively. No genetic

contribution to the variance of apo A-I could be demonstrated. Additionally, males had lower concentrations of apo A-I, but higher of apo A-II, than females.

80-6-05 EMHG-25-147

TWIN STUDIES AND SUBSTRATE DIFFERENCES IN PLATELET MONOAMINE OXIDASE ACTIVITY

L. Hussein, E. Sindarto, and H.W. Goedde
Institute of Human Genetics, University of Hamburg, West Germany
Human Heredity (1980) 30/2:65–70

Monoamine oxidase activity was measured in blood platelets of 7 pairs of identical (MZ) twins and a similar number of age- and sex-matched control pairs. Mean intrapair difference in platelet MAO activity was significantly smaller ($0.01 < p < 0.025$) in MZ compared to controls. Kinetic studies of the value of 1.0×10^{-5} mol/1 for tryptamine. Platelet MAO activity is higher in women than in men.

7. TWIN RESEARCH IN CLINICAL STUDIES

78-7-37 EMIST-21-2140

CLUES FROM GENETIC AND EPIDEMIOLOGIC STUDIES

C.L. Christian
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Arthritis and Rheumatism (1978) 21 [Supplement]:S130–S133

There are clear indications that genetic variables influence the pathogenesis of SLE. The frequency of the disease in first-degree relatives of SLE subjects appears to be in the range of 1–2%, but this is in great excess relative to the frequency of SLE in the general population. The frequency of concordance of the disease in monozygotic twin pairs is in excess of 50%. The frequency of concordance of dizygotic twins may be no higher than that in other first-degree relatives. Data in twins support the conclusion that familial aggregation is due to genetic rather than to other familial factors. The high female-to-male ratio of patients with SLE may reflect sex hormonal influence on immunoreactivity rather than the genetic aspects of sex per se. The approximately threefold higher incidence of SLE in black subjects relative to white, in some studies, may reflect a heightened activity of the humoral immune system in blacks.

78-7-38 EMHG-24-1993

FINGERPRINT BODY MYOPATHY: A REPORT OF TWINS

R.G. Curless, C.M. Payne, and F.M. Brinner
Department of Neurology, University of Miami School of Medicine, Miami, Florida
Developmental Medicine and Child Neurology (1978) 20:793–798

Ultramicroscopic changes of subsarcolemmal fingerprints in the muscle of children with infantile hypotonia and weakness may represent a specific congenital entity. Four children have been reported so far. The two children reported in the present paper are the first full siblings to be described and in addition are identical twins. Four of these six children also had mental retardation, which suggests that this disorder may carry with it a significant risk of central nervous system abnormality.

78-7-39 EMHG-24-2872

CHRONIC RELAPSING PANCREATITIS IN TWIN-BROTHERS WITH TYPE V HYPERLIPOPROTEINEMIA

P. Hoste, F. Lentini, and R. Rottiers
Section of Endocrinology, Department of Medicine, Academy Ziekenh, Ghent, Belgium
Acta Clinica Belgica (1978) 33:313–322

Two cases of type V hyperlipoproteinemia in monozygotic twin-brothers are described. Hyperlipemia was

associated with recurrent attacks of abdominal pain, bouts of chronic relapsing pancreatitis, thrombosis of the splenic vein, splenomegaly and segmental portal hypertension. One patient died following a drainage operation of a pancreatic abscess. Early recognition of the disease and appropriate treatment may prevent useless surgical intervention. A family study was undertaken and 3 additional cases of type IV hyperlipoproteinemia were found.

78-7-40 EMR-42-2841

CORTICAL HYPEROSTOSIS IN CHILDREN

D. Doge and C. Ebert
Kinderklinik, Medizinische Akademie, Carl Gustav Carus, Dresden, East Germany
Beitraege Zur Orthopaedic und Traumatologie (1978) 25:616–622

The clinical picture of infantile cortical hyperostosis is described using an example of a uniovular twin who fell ill in the 6th week of life. The second twin remained free from symptoms. The problems of the differential diagnosis and therapy are elucidated.

78-7-41 EMHG-25-1470

MONOZYGOTIC TWINS WITH KLINEFELTER'S SYNDROME DISCORDANT FOR SYSTEMIC LUPUS ERYTHEMATOSUS AND SYMPTOMATIC MYASTHENIA GRAVIS

J.P. Michalski, S.M. Snyder, R.L. McLeod, and N. Talal
Department of Medicine, University of California, San Fransisco
Arthritis and Rheumatism (1978) 21:306–309

Monozygotic twins with Klinefelter's syndrome were evaluated for 2 distinct illnesses. One subject had clinical and serologic evidence of systemic lupus erythematosus and no symptoms of muscle weakness. His identical twin had typcial symptoms and laboratory evidence of myasthenia gravis. Antibodies to acetylcholine receptors were present in both subjects. These patients are discussed in relation to genetic, hormonal, and immunologic mechanisms involved in the pathogenesis of these 2 disorders.

78-7-42 EMHG-24-2234

PSORIASIS IN AN UNSELECTED SERIES OF TWINS

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Department of Dermatology, Odense University Hospital, Odense, Denmark
Archives of Dermatology (1978) 114:874–878

The relative importance of genetic factors in the origin, age of onset, clinical type, course, and severity of psoriasis was evaluated on the basis of an unbiased sample of twins, i.e., the Danish Twin Register, which covers the total population of twins born in Denmark. All verified and probable cases of psoriasis in twins, born 1891, through 1920, were ascertained. Results are presented of an examination of all members of index pairs in which both partners were alive on a certain date. Fourteen monozygotic and 22 dizygotic, like-sexed pairs were found to include at least one partner with unquestionable psoriasis. Zygosity determination was mainly based on extensive serological examinations. The analyses show that the manifestation of psoriasis depends almost exclusively on the presence of the specific genotype. The age at onset, clinical type, course, and severity are also mainly determined by the genetic constitution. Association with certain HLA antigens of the B series has been confirmed, but the fact that many of the twins (including several of the concordant monozygotic pairs) possess neither of these antigens shows the corresponding genes to be important, but not decisive, elements in the predisposition. We conclude that psoriasis is a genetically determined disorder that may, to a limited extent, be modified by environmental influences.

78-7-43 EMOG-37-628

MALIGNANT GIANT CYST OF THE OVARY WITH TERM TWIN PREGNANCY

J. Perez-Soler, F. Monguio, C. Rodriguez, and E. Puig De Morales
Ciudad Sanitaria Seguridad Social Francisco Franco, Barcelona, Spain
Acta Obstetricia y Ginecologia Hispana Lusitana (1978) 26:401–413

A case of a large ovarian cyst containing 15 liters of fluid and a term twin pregnancy is reported. The patient delivered vaginally and the cyst was surgically removed during puerperium. A diagnosis of mucinous cystadenoma, potentially malignant, was made. The patient was reoperated six months later because of ascitis and an ovarian tumor. The tumor was removed and a diagnosis of pseudomucinous cystadenocarcinoma was made. The patient died one year later after a course of postoperative radiotherapy. The diagnostic difficulties are stressed and a review of the literature is carried out.

79-7-04 EMHG-25-1558

INSULIN SECRETION IN TWINS WITH ADULT-ONSET TYPE OF DIABETES MELLITUS

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Excerpta Medica I.C.S. (1979) 468:294–299

The coincidence rate of adult-onset type diabetes mellitus in MZ twins was significantly higher than in DZ twins. The mean intrapair differences in blood sugar and insulin of MZ twins from the same environment with coincident diabetes was less than that for MZ twins from different environments. In MZ twins with a discordant diabetes, insulin secretion of the non-diabetic twin partner is maintained normally or subnormally at the stage of normal glucose tolerance; thereafter the insulin secretory capacity gradually decreases depending on the degree of impairment in their glucose tolerance before the onset of diabetes mellitus. The insulin level is thus concluded to be phenotypic with inherited and other regulatory factors of carbohydrate metabolism; impinging environmental factors are highly relevant.

79-7-05 EMHG-25-1858

DIABETES: THE GENETIC CONNECTIONS

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Diabetes Department, King's College Hospital, London, England
Diabetologia (1979) 17:333–343

Insulin dependent (IDD) and non-insulin dependent diabetes (NIDD) are separate disorders. Twin studies show that IDD cannot be entirely due to genetic cases as concordance is no more than about 50%, but there is some inherited predisposition to it as shown by HLA patterns. NIDD, on the other hand, is predominantly due to genetic causes since identical twins are nearly always concordant. Many cases of NIDD show chlorpropamide alcohol flushing (CPAF), a dominantly inherited feature which may precede the appearance of diabetes and thus act as a genetic marker for this type of diabetes. Diabetics who show chlorpropamide alcohol flushing are less likely to develop retinopathy than those who do not. Genetic factors must therefore affect the incidence and severity of diabetic retinopathy. Chlorpropamide alcohol flushing is due to sensitivity to enkephalin. Enkephalin and other opioids affect carbohydrate metabolism and insulin release. It is possible therefore that they act as neurotransmitters and cause NIDD by a sympathetically mediated effect on the liver and pancreas; in other words, that as far as NIDD is concerned Claude Bernard's views on the cause of diabetes may have been right.

79-7-06 EMD-34-2814

FAMILIAL MACULOPATHY ASSOCIATED WITH ENDOCRINE DISORDERS

R. Herzeel, M. Brihaye-Van Geertruyden, F. Verworst, et al
Clinic of Opthalmology, Vrije University, Brussels, Belgium
Bulletin de la Societê Belge d'Ophthalmologie (1979) 183:156–161

A picture of a vitelliform cyst is found in the eye fundus of twin-sisters, without affection of the electro-oculogram and associated with a disturbance of the sexual hormones. The results of the study of the electro-oculogram, the electro-retinogram, the colour vision, the visual fields and the fluorescein angiography are in favour of a cone dystrophy as a diagnosis.

79-7-07 EMO-34-888

SQUINT IN MONOZYGOTIC TWINS

B. DeVries and W.A. Houtman

Opthalmology Clinic, Academy Hospital, Groningen, Netherlands
Documenta Ophthalmologica (1979) 46:305–308

In a group of monozygotic twins, in which at least one of the pair squinted, strabismus was observed in both twins in only about half of the cases. Within the concordant group there was variation in the way in which the anomaly became manifest.

79-7-08 EMHG-25-769

HEREDITY OF MICROSTRABISMUS AND PREDISPOSITION TO WIDE-ANGLE STRABISMUS

K. Oggel and R. Rochels
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Klinische Monatsblaetter fur Augenheilkunde (1979) 175:697–703

Some aspects of the genetic etiology of strabismus are discussed. As the authors' research on a 19 member family including discordant monozygotic twins demonstrates, an inherited sensorial defect does not necessarily lead to wide-angle strabismus. Inherited factors probably always combine with secondary factors to produce wide-angle strabismus.

79-7-09 EMHG-24-798

A STUDY OF STRABISMUS IN MONOZYGOUS TWINS

E. Kato, M. Otsubo, K. Yamamoto, and K. Adachi
Department of Opthalmology, Kyoto Prefect University of Medicine, Kyoto, Japan
Folia Ophthalmologica Japonica (1979) 30:202–205

During the last 10 years, 36 pair of monozygous twins with squint have been experienced. Twenty pairs of them had only one strabismic child in siblings while the other was orthophoric, suggesting some environmental factors being involved in the pathogenesis of strabismus formation. An analysis of these 20 pairs failed to detect any environmental factors in most cases. In one pair there has been observed characteristic onset of strabismus in orthophoric children at the age of 8 yr, suggesting that near vision work may play some role for strabismus formation.

79-7-10 EMHG-25-1070

TWINS SUFFERING FROM CONGENITAL OCULOMOTOR APRAXIA

H. Kaufmann

Klinische Monatsblaetter fur Augenheilkunde (1979) 175:360–366

Cogan (1952) described a syndrome he called congenital ocular motor apraxia. The syndrome is characterized by: absence of voluntary gaze movements and fast phase of optokinetic response in horizontal direction, typical jerky head movements in attempted gaze to either side, normal random movements, and normal vertical eye movements. A report is given on this disorder in the case of female twins.

79-7-11 EMPPS-62-3099

ACQUIRED MONOCULAR NYSTAGMUS IN MONOZYGOUS TWINS

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Department of Pediatric Ophthalmology, University of California Medical Center, San Francisco
Journal of Pediatric Ophthalmology and Strabismus (1979) 16:115–118

Twin girls presented with monocular nystagmus, head nodding, and tilting in early infancy. This disorder resolved without therapy or residual defect. This case represents the first documented report of spasmus nutans presenting with only monocular nystagmus in twins. The etiology of spasmus nutans and monocular nystagmus is discussed in light of recent clinical and experimental observations.

79-7-12 EMHG-25-1068

INHERITED DUANE'S SYNDROME: MIRROR-LIKE LOCALIZATION OF OCULOMOTOR DISTURBANCES IN MONOZYGOTIC TWINS

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Journal of Pediatric Ophthalmology and Strasbismus (1979) 16:152–155

The oculomotor anomaly called 'Duane's syndrome' (DS) is characterized by: (1) a limitation of the horizontal excursions of the globe, and, on attempted adduction: (2) a retraction of the eye, and (3) narrowing of the palpebral fissure. In most cases abduction is more severely limited than is adduction. Horizontal gaze, especially adduction, is often accompanied by a vertical deviation of the globe. The abundant literature on sporadic and inherited DS compiled during the last 100 years, contains only two reports of DS in monozygotic twins. We, therefore, thought it worth reporting an additional couple of monozygotic twins affected with DS. This is the first report on an inherited DS found to be discordant in monozygotic twins.

79-7-13 EMHG-25-1328

TOTAL CARIES EXPERIENCE IN MONOZYGOTIC AND LIKE-SEXED DIZYGOTIC TWINS OF CAUCASOID ORIGIN AGED 5 TO 15 YEARS

C.G. Fairpo
Department of Child Dental Health, University of Leeds School of Dentistry, Leeds, England
Archives of Oral Biology (1979) 24:491–494

A comparison of the total caries experience (DMF and dmf) of 100 pairs of monozygotic twins with that of 120 pairs of like-sexed dizygotic twins revealed highly significant differences in within-pair variances (F-test) between the groups. This confirms the findings of several workers, although not in agreement with the results of others, and would appear to indicate the presence of a genetic factor in the caries process. Further analysis of the data would be required to determine at what level this factor may be operating.

79-7-14 EMPPS-42-555

BENIGN RECURRENT CHOLESTASIS IN MONOZYGOTIC TWIN GIRLS

D.U. Leiber, I. Lagenstein, and R. Gruettner
Universität Kinderklinik, Hamburg-Eppendorf, West Germany
Monatsschrifte fur Kinderheilkunde (1979) 127:48–51

The cases of Monozygotic twin girls suffering from benign recurrent familiar intrahepatic cholestasis are reported. So far both children had six icteric episodes due to this disease. These episodes occurred during time of severe emotional stress; therefore, it may be assumed that a latent enzyme deficiency in the metabolism of bile acids, which is determined genetically, could be influenced by psychosomatic mechanisms. During the acute phases phenobarbital and cholestyramine successfully reduced serum bilirubin levels.

79-7-15 EMPPS-43-1809

MUCOPOLYSACCHARIDOSIS I-S (SCHEIHE'S DISEASE)

Ch. Luderschmidt, WB. Schill, D. Burg, et al
Dermatologie Klinik, Unversität Munchen, West Germany
Deutsche Medizinische Wochenschrift (1979) 104:1482–1487

Mucopolysaccharidosis I-S (Scheihe's disease) was observed in two twin sisters. The disease is characterised by monozygous cornea opacity, hepatospenomegaly, carpal tunnel syndrome, flexion contractures of the fingers and toes, valvular heart disease, normal intelligence and essentially normal behaviour. The biochemical defect consists of a deficiency of the lysosomal hydrolase α-L-iduronidase. Urinary dermatan-sulphate excretion is raised. The muscles are also involved: the electron microscope reveals interstitial storage of glycosaminoglycanlike substance. There is no specific treatment.

79-7-16 EMHG-24-459

COELIAC DISEASE IN IDENTICAL TWINS

F.J. Penna, J.A.C. Mota, M.L.V. Roquete, et al
Paediatrics Department, Federal University, Minas Gerais, Brazil
Archives of Disease in Childhood (1979) 54:395–397

Coeliac disease occurred at the same age in MZ twins, the diagnosis was confirmed by histology of the small intestine, rapid response to a gluten-free diet, and relapse after reintroduction of gluten.

79-7-17 EMHG-25-1689

PHENYLALANINE-FETOPATHIA IN TWINS OF AN UNDIAGNOSED PHENYLKETONURIC MOTHER

W.D. Mueller, M. Haidvogl, and S. Scheibenreiter
Universität Kinderklinik, Graz, Austria
Klinische Paediatrie (1979) 191:609–612

A case report of microcephalic twins born to a hitherto undetected phenylketonuric mother is given. The female twin suffered from phenylketonuria, too. The clinical findings included microcephaly, growth retardation, retarded bone age and an unusual facies. The psychomotor development was retarded in both twins, but more so in the phenylketonuric twin despite appropriate low phenylalanine diet.

79-7-18 EMHG-25-677

DEVELOPMENT OF FACTOR VIII ANTIBODY IN HAEMOPHILIC MONOZYGOTIC TWINS. EUROPEAN STUDY GROUP OF FACTOR VIII ANTIBODY

D. Frommel
INSERM-U 56, Hôpital des Enfants, Le-Kremlin-Bicetre, France
Scandinavian Journal of Haematology (1979) 23:64–68

The immunologic consequences of replacement therapy have been studied in 2 pairs of young haemophilic monozygotic twins. In both pairs one cotwin only developed a factor VIII specific antibody. This non-concordance illustrates the influence upon a specific immune response of non-genetic factors since the blood products, administered to each brother-pair, were not at all time identical nor were the regimens of transfusion therapy.

79-7-19 EMPPS-42-987

HIRSCHSPRUNG'S DISEASE DISCORDANT IN MONOZYGOTIC TWINS: A STUDY OF POSSIBLE ENVIRONMENTAL FACTORS IN THE PRODUCTION OF COLONIC AGANGLIONOSIS

T.C. Moore, D.B. Landers, R.S. Lachman, and M.E. Ament
Division of Pediatric Surgery, UCLA Harbor Hospital, Torrance, California
Journal of Pediatric Surgery (1979) 14:158–161

The occurrence of Hirschsprung's disease, with histologically verified colonic aganglionosis, in only 1 of 2 prematurely born and presumed identical (monozygotic) twins is reported. The occurrence of monozygotic twinning was supported by the observed sharing of a single and common placenta and by ABO and HLA identity of peripheral blood erythrocytes and leukocytes. The affected twin was of a slightly lower birth weight and experienced early respiratory distress, necrotizing enterocolitis, and more prolonged umbilical artery catheterization (not encountered in the unaffected twin). This, to the authors' knowledge, is the first reported occurrence of Hirschsprung's disease discordant in monozygotic twins. The literature relating to genetic and environmental factors in clinical and experimental colonic aganglionosis is reviewed and speculation is presented regarding the occurrence of colonic aganglionosis discordant in monozygotic twins as reported here.

79-7-20 EMHG-24-751

URETEROCELE: A FAMILIAL CONGENITAL ANOMALY

A. Ayalon, A. Shapiro, S.Z. Rubin, and M. Schiller

Department of Pediatric Surgery, Hadassah University Hospital, Jerusalem, Israel
Urology (1979) 13:551–553

Nonidentical twins with ectopic ureteroceles, and duplication of the urinary collecting system in 2 more members of the same family are described. This incidence may indicate that inborn anomalies of the urinary tract may have a genetic background.

79-7-21 EMHG-24-1574

HORMONAL ANALYSIS AND DELAYED HYPERSENSITIVITY REACTIONS IN IDENTICAL TWINS WITH SEVERE ACNE

R. Palatsi and A. Oikarinen
Department of Dermatology, University Center Hospital, Oulu, Finland
Acta Dermato-Venereol (Stockholm) (1979) 59:157–160

Identical twins aged 17 and another pair aged 21 are described. One pair had febrile ulcerative conglobate acne; the other, cystic acne. The location of acne, the type of the lesions and the course of the disease were very similar in the two twins of each pair. The testosterone levels of the 17-year-old pair varied and their acne was in an active stage, while the 21-year-old pair had high testosterone levels and their acne was abating. The 17-year-old pair had negative Mantoux reactions and they reacted negatively to DNCB sensitization. The authors suggest that acne skin may have a certain genetically determined local factor, e.g. hormone receptor, which gives rise to acne in a certain hormonal situation.

79-7-22 EMHG-24-525

CONCOMITANT GERM CELL TUMORS IN MONOZYGOTIC TWINS

H.J. Wilbur, M.W. Woodruff, and M.S. Welch
Division of Urology, Department of Surgery, Albany Medical Center, Albany, New York
Journal of Urology (1979) 121:538–540

Simultaneously occurring embryonal cell tumors in a 38-year-old set of monozygotic twin brothers are reported. This is the eighth documented case of testicular cancer in twins and it is unique since it is the first report to describe bilateral testicular tumors in 1 of the twin brothers. The role of genetics in the development of certain cancers warrants further study. This documentation of testicular tumors in serologically proved identical twins is used as a basis for discussion of the role of heredity as a possible significant factor in germ cell tumor pathogenesis.

79-7-23 EMHG-25-200

MULTICYSTIC ENCEPHALOMALACIA IN LIVEBORN TWIN WITH A STILLBORN MACERATED CO-TWIN

H. Yoshioka, Y. Kadomoto, M. Mino, et al
Department of Pediatrics, Kyoto Prefect University of Medicine, Kamikyo-Ku, Kyoto, Japan
Journal of Pediatrics (1979) 95:798–800

Computed tomography showed multiple cystic lesions in the brains of three infants with cerebral palsy. Each patient was the product of a twin pregnancy with a stillborn, macerated co-twin. In two patients angiography was performed and suggested that the cystic lesions were multicystic encephalomalacia due to perinatal arterial occlusion.

79-7-24 EMHG-25-1650

HODGKIN DISEASE IN MONOZYGOTIC TWINS: A CASE REPORT

K. Gracz, S. Kofman, and S.G. Economou
Department of General Surgery, Rush-Presbyterian St. Luke's Medical Center, Chicago, Illinois
Journal of Surgical Oncology (1979) 12:221–226

Presented are the case histories of monozygotic male twins concordant for Hodgkin disease. This is believed to be the third such case report in the world literature. Its significance as it relates to the role of heredity in carcinogenesis is discussed.

79-7-25 EMHG-24-2934

DISAPPEARANCE OF Ph^1-POSITIVE CELLS IN FOUR PATIENTS WITH CHRONIC GRANULOCYTIC LEUKEMIA AFTER CHEMOTHERAPY, IRRADIATION AND MARROW TRANSPLANTATION FROM AN IDENTICAL TWIN

A. Fefer, M.A Cheever, E. Thomas, et al
Division of Oncology, Department of Medicine, University of Washington, Seattle
New England Journal of Medicine (1979) 300:333–337

Four patients (21, 41, 13 and 38 yr of age) with a history of chronic granulocytic leukemia for 12, 10, 11, and 106 mth, respectively, were treated with dimethyl busulfan, cyclophosphamide, 920 rads of total-body irradiation and intravenous marrow infusion from normal, genetically identical twins. Serial chromosome analyses were performed on marrow aspirates cultured without mitotic stimulants. No Ph^1-positive cells were detected in the marrows from the normal twins, whereas just before therapy, all 100 metaphases examined from each patient were Ph^1-positive. Chromosome analyses were performed three to five times per patient after transplantation, and not a single Ph^1-positive cell was detected. The patients remain hematologically normal 22, 23, 26 and 31 months after transplantation. The results show that the Ph^1-positive clone can be eradicated by vigorous therapy and that the marrow in chronic granulocytic leukemia can be repopulated by stem cells from normal twins.

79-7-26 EMIM-42-3048

ANKYLOSING SPONDYLITIS IN MONOZYGOUS TWINS. STUDY OF HLA COMPLEX

A. Gaucher, P. Netter, C. Raffoux, et al
Clinique de Rhumatologie, Nancy-Brabois, Vandoeuvre les Nancy, France
Nouvelle Presse Medicale (1979) 8:2001–2004

A study of HLA complex (HLA, A, B, C, DRw, Bf, chiddo) in monozygous twins suffering from ankylosing spondylitis with different clinical courses. All the markers studied were identified. The results would tend to suggest that hereditary factors are not alone responsible in the course of ankylosing spondylitis. Furthermore, they are not the sole causative factor of the disease since the literature contains reports of discordant pairs of twins.

79-7-27 EMPPS-42-309

IDIOPATHIC SCOLIOSIS IN IDENTICAL (MONOZYGOTIC) TWINS

R.L. Gaertner
Division of Orthopedic Surgery, Crippled Children's Hospital, Medical College of Virginia, Richmond
Southern Medical Journal (1979) 72:231–233

The diagnosis of idiopathic scoliosis is derived by the exclusion of other known causes. It has been postulated that hereditary or environmental factors may be responsible for the spinal deformity. Since the interaction between heredity and environment is so complex, twin studies are of great value because monozygotic twins are isogenic and allow studies of the effects of environmental variations, while dizygotic twins are genetically different and function as ordinary siblings. Idiopathic scoliosis, occurring in identical twins is an unusual event, having been reported infrequently in large series both in North America and abroad. Two sets of identical twins with concordant scoliosis are presented along with treatment, follow up, and a discussion of etiology.

79-7-28 EMPPS-43-541

THE TWIN WITH ESOPHAGEAL ATRESIA

J.C. German, G.H. Mahour, and M.M. Wooley
Division of Pediatric Surgery, Department of Surgery, University of California Medical Center, Orange, California
Journal of Pediatric Surgery (1979) 14:432–435

A retrospective analysis of esophageal atresia occurring in patients who are members of a twin set indicating that twinning does occur more frequently in patients with esophageal atresia. These patients tend to be small for date, but have a similar occurrence of associated anomalies as singletons with

esophageal atresia. Applying risk-grouping to the entire series and twins indicated no real difference in survival or additional anomalies by organ system, except more cardiovascular anomalies occurred in twins. Long-term follow-up of five survivors revealed severe growth retardation.

79-7-29 EMOG-37-431

CONGENITAL MALARIA IN A GREEK TWIN

G. Kluitman, H. Kehrberg, U. Bienzle, and G. Gaedcke
Kinderkrankenhaus, Koln, West Germany
Monatsschritte fur Kinderheilkunde (1979) 127:98–100

A case of congenital malaria due to Plasmodium malariae in one of two living Greek twins born in Germany is presented. In the child fever, anaemia and hepatosplenomegaly were first noticed at the age of two months. Plasmodium malariae parasites were demonstrated in their peripheral blood and bone marrow. The sera of mother and infant contained malaria antibodies. However, the mother never showed clinical signs of malaria. Diagnosis and therapy of congenital malaria and the possible mode of transmission of this rare disease are discussed.

79-7-30 EMHG-25-1539

FETAL GLOBOID CELL LEUKODYSTROPHY IN ONE OF TWINS

R. Okeda, Y. Suzuki, S. Horiguchi, and T. Fujii
Department of Pathology, Tokyo Metropolitan Komagome Hospital, Tokyo, Japan
Acta Neuropathologica (Berlin) (1979) 47:151–154

Twins with high-risk cell leukodystrophy (GLD) at the 6th gestational month were studied morphologically and enzymatically. One of them was affected and the other was probably the carrier of this disease. Central nervous system and other viscera developed normally for the gestational age in both fetuses. The lesions of GLD were found in the fetus with marked deficiency of galactocerebrosidase, but not in the probable carrier. The lesions were located only in the considerably myelinated areas viz, the brain stem and the spinal cord. Ultrastructurally, the globoid cells in the fetal GLD seemed to originate from glial cells, probably oligodendroglia.

79-7-31 EMHG-24-228

DIZYGOSITY OF DISCORDANT TWINS WITH NOONAN SYNDROME

K.N. Lai, K.C. Lam, and J.W.M. Lawton
Department of Medicine, Queen Mary Hospital, University of Hong Kong
Clinical Genetics (1979) 15:509–512

A pair of discordant twins, one of whom had Noonan syndrome, is reported. Most of the cardinal signs of Noonan syndrome were demonstrated by the affected twin. The etiology of the syndrome is briefly reviewed. The dizygosity of the twins was proved by ABO blood grouping and mixed lymphocyte reaction. The findings are interpreted as reasonably good evidence that genetic factors are the prime etiology in the pathogenesis of Noonan syndrome.

79-7-32 EMHG-25-503

PIGMENTARY DEGENERATION OF THE RETINA IN THE HALLERVORDEN-SPATZ SYNDROME

F.W. Newell, R.O. Johnson II, and P.R. Huttenlocher
Department of Ophthalmology, University of Chicago, Chicago, Illinois
American Journal of Ophthalmology (1979) 88:467–471

Dizygotic twins developed a progressive neurologic disorder at age 6 months. When examined at age 7½ years each had spastic quadriparesis and dystonia. Neither had ever spoken a complete sentence. The fundi showed bone spicule formation, a conspicuous choroidal circulation, and a striking accumulation of yellowish-white globular masses of varying sizes and shapes. Because our patients developed both the pigmentary degeneration and clinical signs of Hallervorden-Spatz syndrome at a much younger age than patients without retinopathy, we believe this case demonstrated a distinct nosologic entity.

79-7-33 EMHG-24-88

DISCOVERY OF AN INHERITED BISATELLITED METACENTRIC MICROCHROMOSOME IN AMNIOTIC CELL CULTURE

D.R. Romain, L. Columbano-Green, R.H. Smythe, and P.C. Dukes
Department of Medical Cytogenetics, Wellington Hospital, Wellington, New Zealand
Clinical Genetics (1979) 16:183–190

The identification is reported of an extra bisatellited metacentric microchromosome in amniotic cell culture from the third pregnancy of an identical twin (amniocentesis being performed because of age), and its subsequent finding in the maternal parent as an inherited familial marker. The carriers of the microchromosome are all clinically normal and the parents opted for continuation of pregnancy. Only one other report was found in the literature of a similar microchromosome detected in amniotic fluid culture, but we believe ours to be the first bisatellited microchromosome to be clearly identified from an amniotic cell culture using silver staining.

79-7-34 EMC-45-3353

EMBRYONIC TESTICULAR CARCINOMA IN IDENTICAL TWINS

C. Rioja Sanz, M. Esclarin Duny, M.J. Rios Mitchell, et al
Servicio Urologico, Departamento de Cirurgia, Ciudad Sanadorio Seguridad Social, Zaragoza, Spain
Actas Urologicas Espanolos (1979) 3:299–302

The authors report on the occurrence of testicular neoplasia (embryonic infantile carcinoma with teratomatose areas) in two monozygotic twin brothers, discovered within a short time of each other; this is the 8th case of testicular neoplasia to be noted in twin brothers and the 15th case in brothers who are not twins. Comment is made on certain anatomopathological peculiarities and the clinical evolution which is dependent on the tumour stage, the treatment and the possible importance of genetics in the pathogenesis of these neoformations.

79-7-35 EMPPS-42-3092

PROLONGED ARTHRITIS IN IDENTICAL TWINS AFTER RUBELLA IMMUNIZATION

A.J. Tingle, D.K. Ford, G.E. Price, and D.W.G. Kettyls
University of British Columbia, Vancouver, Canada
Annals of Internal Medicine (1979) 90:203–204

The development of transient or recurrent arthritis has been reported after either wild-type rubella infection or immunization with the HPV-77 DK/12 or, more rarely, the HPV-77 DE/5 strain of rubella vaccine (1–3). We describe the development of prolonged arthritis in identical female twins after HPV-77 DE/5 rubella immunization and report on virologic and immunologic studies carried out prospectively on one of the twins. The results support the hypothesis that abnormalities in the regulation of immunologic response to rubella virus play an important role in the development of rubella-associated arthritis.

79-7-36 EMHG-25-1627

ALZHEIMER'S DISEASE IN A MOTHER AND IDENTICAL TWIN SONS

M.G. Sharman, D.C. Watt, I. Janota, and L.H. Carrasco
St. John's Hospital, Aylesbury, England
Psychological Medicine (1979) 9:771–774

Alzheimer's disease confirmed by histological examination is described for the first time in identical twin brothers who both died at the age of 38 years. Their mother died of a dementing illness at the age of 42 years and her brain was atrophied at post mortem.

79-7-37 EMHG-24-840

CONCORDANT CONGENITALMALFORMALTIONS IN TWINS WITH INHERTIED TRANSLOCATION: t(9p−;13q+)

G.S. Sekhon and K. Taysi

Edward Mallinckrodt Department of Pediatrics, Washington University School of Medicine, St. Louis, Missouri
Human Genetics (1979) 50:271–276

Several members of a family with a translocation between the short arm of chromosome 9 and the long arm of chromosome 13(9p−;13q+) are presented. Although the translocation found in various members of the family looked alike and appeared to be balanced, the clinical features were different. The like-sex twins displayed some features of 9p monosomy syndrome, whereas their mother and maternal grandmother, who apparently had the same translocation, showed only a few features of 9p− syndrome in addition to mild mental retardation. It is suggested that a minute deletion of the short arm of chromosome 9 may cause features of 9p− syndrome and that the clinical features of this syndrome in older individuals may be too mild for the clinical diagnosis to be possible.

79-7-38 EMPPS-43-1285

MITRAL VALVE PROLAPSE AND CONGENITAL PYLORIC STENOSIS IN IDENTICAL TWINS

S. Vuthoori and E.F. Beard
Division of Cardiology, Texas Heart Institute, Houston, Texas
Cardiovascular Diseases (1979) 6:463–467

Both congenital pyloric stenosis and the mitral valve prolapse syndrome are reported to have a familial incidence. Although mitral valve prolapse has been documented in twins, only one case has received echocardiographic confirmation. The present account describes typical symptomatic mitral valve prolapse in identical twins, both of whom had undergone surgery during infancy to correct congenital pyloric stenosis.

79-7-39 EMHG-24-1336

FACIAL CLEFTS IN DANISH TWINS

E.D. Shields, D. Bixler, and P. Fogh-Andersen
Department of Oral Medicine, McGill University School of Dentistry, Montreal, Canada
Cleft Palate Journal (1979) 16:1–6

A total of 74 Danish twin pairs with cleft lip ± palate (CL(P)) and isolated cleft palate (CP) born in Denmark from 1941 to 1969 were studied. Eight pairs were of indeterminate zygosity status and 26 pairs of unlike sex were dizygous (DZ). Of the remaining 42 like-sexed pairs, zygosity assignments were made from genotyping and physical resemblance data. Twelve pairs were given MZ status and thirty pairs DZ status. The following data were calculated: in contrast to other reports, the incidence of either CL(P) or CP was not increased for either MZ or DZ twins; using the pairwise method for concordance rate calculation, concordance rates for CL(P) twins were: MZ = 36%; DZ = 1.5%. For CP, MZ = 33%; DZ = 0%. The results support the concept that heredity is a prime factor in the etiology of clefting, but the low MZ concordance rates also suggest genetic heterogeneity in this cleft population.

79-7-40 EMPPS-41-1373

THE ANGIOGRAPHIC DEMONSTRATION OF INFRA-TENTORIAL TUMORS WITH IDENTICAL MANIFESTATIONS, LOCALISATION AND HISTOLOGY IN IDENTICAL TWINS

K. Voigt and B. Marquardt
Abt. Neuroradiolsche, Medizinische Strahleninstitut, Universität aus Tubingen, West Germany
Fortschritte auf dem Gebiete der Roentgen Strahlenund der Nuklearmedizin (1979) 130:89–94

The angiographic diagnostic features of concordant tumors of the posterior fossa in monozygotic twins are described. In both cotwins cranio-spinal subependymomas were found which had grown through the foramen magnum and reached from the fourth ventricle down to the second cervical vetebra. Thereby, the conformity of the clinical manifestation, symptomotology and the course of the disease, the localisation and extent of the tumors as well as the neuroradiologic findings and the histologic features of the tumors were particularly striking. After a review and critical summary of the few cases of concordant affections

with brain tumors in identical twins published in the literature at present our couple is discussed under the question of the possible influence of genetic factors or a hereditary disposition on the development of cerebral tumors.

79-7-41 EMHG-24-2748

CYTOGENETIC EVIDENCE OF THE INTRAUTERINE ORIGIN OF ACUTE LEUKEMIA IN MONOZYGOTIC TWINS

R.S.K. Chaganti, D.R. Miller, P.A. Meyers, and J. German
Laboratory of Genetics, Memorial Sloan-Kettering Cancer Center, New York
New England Journal of Medicine (1979) 300:1032–1034

The finding of the same cytogenetic abnormalities in the leukemic blast cells of 15-month-old identical twins with acute lymphocytic leukemia is reported.

79-7-42 EMHG-24-2635

SIMULTANEOUS CLINICAL MANIFESTATION OF SUBEPENDYMOMA OF THE FOURTH VENTRICLE IN IDENTICAL TWINS. CASE REPORT

P. Clarenbach, P. Kleihues, E. Metzel, and J. Dichgans
Department of Neurology, University of Freiburg, West Germany
Journal of Neurosurgery (1979) 50:655–659

At the age of 22 years, identical twin brothers simultaneously developed symptoms of intracranial pressure. Radiological investigation revealed cerebellar midline tumors with occlusive hydrocephalus of the third and lateral ventricles. At operation, subependymomas with identical histological features were found in the fourth ventricle in both twins. This is the first report of subependymomas in identical twins. The clinical data suggest that this tumor type is of maldevelopmental origin.

79-7-43 EMHG-24-2878

GERM CELLS AND OVA IN DYSGENETIC GONADS OF A 46-XY FEMALE DIZYGOTIC TWIN

L.J. Cussen and R.A. MacMahon
Department of Pediatrics, Monash University, Melbourne, Australia
American Journal of the Diseases of Childhood (1979) 133:373–375

The frequency of germ cell neoplasms in girls with 46–XY gonadal dysgenesis suggests that germ cells may persist in the dysgenetic gonads for many years. A phenotypic female infant with a karyotype of 46–XY in blood, skin, and gonads had a few ova in primordial follicles and numerous germ cells in her dysgenetic gonads at the age of 3 months. At 3 years and 10 months of age her gonads contained no primordial follicle and the only remaining germ cells were in a gonadoblastoma. We propose that germ cells are lost from dysgenetic gonads much more rapidly than from normal gonads, but that the rate of loss in patients with a karyotype of 46–XY may be less than the rate of loss in patients with a karyotype of 45–XO.

79-7-44 EMHG-25-504

OTOSCLEROSIS IN IDENTICAL (MONOZYGOTIC) TWINS: TWO MORE CASES

K. Dietzel
HNO Klinik, Wilhelm-Pieck Universität, Rostock, West Germany
HNO (1979) 4:196–214

In addition to the published observations of otosclerosis in monozygotic twins, two further monozygotic female pairs of twins with otosclerosis are described in whom concordance in findings and course was present. The results of the compilation of the data of 37 published cases are: 1) in 28 of 30 pairs two had a clinical otosclerosis and in 2 pairs only one twin had a defective hearing. In 20 of 30 pairs the findings of the audiograms were identical. 2) In 60% of the monozygotic pairs of twins the symptomatology of otosclerosis became manifest in the second decade, in 32% in the third decade (i.e. in 40% simultaneously

in the two twins and in 32% at an interval of 1–3 years). Nine of 28 test persons reported on a subjective deterioration of hearing during pregnancy, 19 of 28 did not notice any influence.

79-7-45 EMOG-38-2093

TROPHOBLASTIC DISEASE OF AN OVUM IN A TWIN PREGNANCY

G. Dolfin, A.M. Dolfin, M. Giana, et al
Ospedale degli Infermi, Biella, Italy
Minerva Medica (1979) 70:3349–3355

A case of trophoblastic disease in a twin pregnancy is described from its diagnosis to follow-up after emptying of the uterine cavity. The possible causes of trophoblastic disease are discussed.

79-7-46 EMCD-33-184

A SIMPLE BALLISTOCARDIOGRAPHIC MEASURE (IJ/HI AMPLITUDE RADIO) IN RELATION TO ELECTROCARDIOGRAPHIC EVIDENCE OF ISCHAEMIC HEART DISEASE

U. De Faire and T. Theorell
Department of Medicine, Serafimerlasarette, Stockholm, Sweden
Scandinavian Journal of Clinical and Laboratory Investigation (1979) 39:435–440

A series of eighteen monozygotic and thirteen dizygotic twin pairs originally selected in 1967–1968 because of the presence of symptoms of ischemic heart disease in at least one of the pair members was subjected to after examination including ultra-low frequency ballistocardiography. The ratio between IJ and HI amplitudes in the ballistocardiogram was used as an index of myocardial mechanical function. The IJ/HI ratio had a repeatability coefficient of 0.82 before and/or after psychiatric interview. The mean ratio did not change significantly after psychiatric interview. The measure was demonstrated to be independent of height, weight, age, heart rate and systolic and diastolic blood pressure and negatively correlated with a measure of somatic anxiety. The ratio was highly significantly correlated with electrocardiographic evidence of ischemic heart disease. The IJ/HI ratio showed a better discrimination than qualitative readings according to Starr and furthermore has the advantage of providing a continuous measure. The ratio seemed to be more influenced by the functional state of the myocardium than by genetic factors.

79-7-47 EMGG-23-373

HEALTH IN OLD AGE: HOW DO PHYSICIANS' RATINGS AND SELF-RATINGS COMPARE?

A. LaRue, L. Bank, L. Jarvik, and M. Hetland
Psychogenetic Unit, VA Medical Center, Brentwood, California
Journal of Gerontology (1979) 34:687–691

The present study was designed to provide information on the relationship between self reports of health and physicians' ratings in an aged sample, and to determine how both of these measures of health relate to longevity. Subjects were 60 survivors (median age = 84.25 years) of a sample of aged twins who had been followed longitudinally since 1947 to 1949. Self-reports of health were found to be significantly correlated with ratings assigned by a physician on the basis of medical records. Both types of measures were predictive of differences in survival time among the younger subjects in the sample, but neither was significantly related to longevity for older subjects. The results suggest that self-reports could provide a valid, cost-effective means of health assessment in studies in which other forms of health information are lacking.

79-7-48 EMHG-24-1342

DISCORDANCE FOR ACHALASIA IN IDENTICAL TWINS

J.D. Eckrich and C.S. Winans
Section of Gastroenterology, Department of Medicine, University of Chicago Pritzker School of Medicine, Chicago
Digestive Diseases and Sciences (1979) 24:221–224

Twenty-year-old twin sisters, believed monozygotic on the basis of extensive blood grouping and cytogenetic studies, are reported. One twin demonstrated classical clinical, radiologic, and manometric features of achalasia, while similar studies in her sister documented perfectly normal esophageal motor function. Genetically determined damage to the esophageal parasympathetic innervation is, therefore, not a likely cause for the esophageal motor dysfunction in achalasia.

79-7-49 EMHG-25-254

ASPLENIA SYNDROME IN ONE OF MONO-ZYGOTIC TWINS

J.L. Wilkinson, P.A. Holt, D.F. Dickinson, and S.K. Jivani
Royal Liverpool Children's Hospital, Liverpool, England
European Journal of Cardiology (1979) 10:301–304

One of mono-zygotic twins who had the asplenia syndrome with severe cardiac malformation is described, the other twin being normal. This is the first documented case of situs ambiguus in mono-zygotic twins. The relationship of situs ambiguus to situs inversus, which has previously been described in a number of mono-zygotic twin pairs (some concordant and some discordant) is unclear.

79-7-50 EMPPS-42-3251

CORNELIA DE LANGE SYNDROME: OCCURRENCE IN TWINS

A. Watson
Department of Dermatology, Royal Newcastle Hospital, Newcastle, New South Wales
Australasian Journal of Dermatology (1979) 20:7–9

The unique occurrence of twins with Cornelia de Lange syndrome is presented and the possible causation of the syndrome and its striking hypertrichosis is considered. It is concluded that the syndrome is multifactorial in origin and that there may be more than one mechanism for the production of the hypertrichosis.

79-7-51 EMHG-25-540

MELKERSSON-ROSENTHAL-SYNDROME IN MONOZYGOTIC TWINS

M. Wessels and B. Krankenhagen
Universität Gesamthochsch., Essen, West Germany
Nervenarzt (1979) 50:402–404

This report concerns the occurrence of a M-R syndrome in monozygotic female twins. The same sex, similarity of the subjects and especially results of blood group serological analyses all point to monozygosity. The case report is considered relevant in underlining the significance of genetic factors in the occurrence of this aetiologically extensively unexplained illness. The literature is discussed.

79-7-52 EMHG-25-1195

DOWN SYNDROME DUE TO 21:21 TRANSLOCATION IN A MALE TWIN

B. Balfour, B. Say, W.A. Geffen, et al
Genetics Unit, Children's Medical Center, Tulsa, Oklahoma
Clinical Genetics (1979) 16:383–386

A spontaneous 21:21 translocation resulting in features consistent with Down syndrome is reported in the first born of male fraternal twins. No history of twinning or chromosomal abnormalities in the family was noted. Any association between dizygous twinning and Down syndrome due to de novo translocation remains speculative until a sufficient pool of published data is available from study of such families.

80-7-01 EMHG-24-2951

SJOGREN-LARSSON SYNDROME IN DIZYGOUS TWIN SISTERS

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Human Heredity (1980) 30:21–26

Two dizygous twin sisters with the Sjogren-Larsson syndrome are described. There was parental consanguinity, and the condition is inherited as an autosomal recessive. The main features are mental retardation, spastic diplegia and ichthyosis. Sensory defects of gums and abnormal facial movements were found in the twins, these being recognised features of the syndrome. It is suggested that the condition may be due to an abnormality of the neural crest.

80-7-02 EMHG-25-1392

A COLLABORATIVE STUDY OF THE ETIOLOGY OF TURNER SYNDROME

A.D. Carothers, A. Frackiewicz, R. De May, et al
MRC Clinical Population and Cytogenetics Unit, Western General Hospital, Edinburgh, Scotland
Annals of Human Genetics (1980) 43:355–368

Data on Turner syndrome from 4 sources were analyzed for possible associations with several etiological factors. Two classes of liveborn propositae were included, those with a nonmosaic 45,X karyotype (XO) and those with an isochromosome of the long arm of the X (iso-X). The numbers were 288 and 84 respectively and constitute the largest series of such cases to be analyzed to date. For the XO's, an analysis using the liveborn full sibs of propositae as controls (method of Carothers et al, 1978) confirmed earlier studies in finding no positive association with parental age or birth order, and even suggested a small negative association. There were no significant differences between the mean parental ages of those cases shown by Xg grouping to have received a maternal X chromosome and those of the remainder. Among the iso-X's there was an exceptionally high proportion (17.5%) of parents with an age difference (paternal-maternal) of 10 or more yr, raising the possibility of a paternal age effect. This agrees with earlier studies but conflicts with the finding of a negligible tendency for affected individuals to be born later within their sibships. The apparent discrepancy may be due to the relative insensitivity of the latter method to small parental age effects in samples of this size. For the XO's there were no detectable seasonal variations in the month of birth, but for the iso-X's there was a significant excess of births in the first 6 mth of the year. Reviewing the conflicting evidence from the literature on seasonal variations in chromosomal aberrations, the authors urge caution in interpreting these results. In agreement with earlier studies, the incidence of twins among both XO's and iso-X's was higher than the population average, but the numbers were too small for statistical significance. There was no evidence for any alteration in the sex ratio among the liveborn sibs of either class.

80-7-03 EMHG-25-1109

CONGENITAL MALFORMATION IN TWINS

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Bureau of Epidemiology, Center for Disease Constraint, Public Health Service, DHEW, Atlanta, Georgia
American Journal of Human Genetics (1980) 32:69–78

Data from the population-based Metropolitan Atlanta Congenital Defects Program (MACDP) show that the overall rate of malformed infants, as well as the incidence of several specific defects, is higher for twins than for singletons. This elevated risk appears limited to same sex twins and, hence, is probably related to monozygosity. In addition to an 18-fold increase in risk of fetal death compared to singletons, twins have almost a 50% greater likelihood of congenital malformation.

80-7-04 EMHG-25-2441

IMMUNOLOGIC EVALUATION OF PATIENTS WITH ISCHEMIC HEART DISEASE. GENETIC DETERMINATION AND RELATION TO DISEASE

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Atherosclerosis (1980) 36:195–200

Delayed skin hypersensitivity and serum immunoglobulins were studied in relation to the severity of ischemic heart disease in 18 male monozygotic and 13 male dizygotic twin pairs, aged 55–78 years. The twin pairs were selected from the Swedish Twin Registry. Low IgG was seen in patients with myocardial infarction and definitive angina pectoris. No correlation between skin anergy and the severity of ischemic

heart disease was found. These findings may support the possibility that immunological mechanisms play a part in the pathogenesis of ischemic heart disease. Significant F-ratios for IgA and differential white cell count support a genetic determination of these variables.

80-7-05 EMR-43-2355

JUVENILE KYPHOSIS IN IDENTICAL TWINS

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Department of Radiology, Betanien Hospital, Bergen, Norway
American Journal of Roentgenology (1980) 134:598–599

There is no universal agreement regarding the etiology and pathogenesis of juvenile kyphosis, Scheuermann's disease. While the importance of intravertebral disc herniations is disputed by some, most authors equate such herniation with the development of juvenile kyphosis. These protrusions of disc tissue into the adjacent vertebra (Schmorl's nodes) are thought to result from expansive pressure on the disc's nucleus pulposus, working on weak areas in the cartilaginous end plates of the vertebral body. This initiates the process which eventually leads to the development of kyphosis, a trait that may be lacking if the disease is primarily lumbar. The possibility that there are congenitally weak areas on the cartilaginous end plates has been mentioned by some, but the probability that Scheuermann's disease has a hereditary basis is controversial. The following case would support the concept of a hereditary factor.

80-7-06 EMHG-25-1388

SITE-SPECIFIC COLONIC CARCINOMA IN IDENTICAL TWINS

S. Whitehead
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Postgraduate Medical Journal (1980) 56:69–70

The development of identically sited carcinomas of the colon in monozygotic twins is described. Presentation occurred within 2 years of each other. They are discussed in the context of the cancer-family syndrome.

80-7-07 EMHG-25-1906

MULTIPLE SCLEROSIS AND NARCOLEPSY/CATAPLEXY IN A MONOZYGOTIC TWIN

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Department of Neurology, Rikshospital, Oslo University Hospital, Oslo, Norway
Neurology (1980) 30:105–108

Symptoms of narcolepsy-cataplexy developed in a monozygotic twin at the age of 56 years, 25 years after the onset of multiple sclerosis. The diagnosis of narcolepsy/cataplexy was confirmed by polygraphic recordings demonstrating sleep-onset periods of rapid eye movements (REM), increase in REM time per 24 hours, and disturbed nocturnal sleep. Frequent cataplectic attacks were almost completely controlled by clomipramine. These symptoms may constitute one of the paroxysmal syndromes in multiple sclerosis. The discordancy for multiple sclerosis is attributed to a submaximal risk factor in the HLA system and a strong environmental factor in only one of the twins.