



Session I

Incidence and Factors of Twinning

Discussion following papers presented by Dr. Hemon, Professor Papiernik,* Dr. Zahálková, and Professor Nylander

Professor Thiery asked about the method of determination of zygosity in Dr. Hemon's study.

Dr. Hemon replied that various methods, including sex, blood groups, and examination of placental membranes were used, but mainly Weinberg's method using the relative proportions of unlike- and like-sexed pairs.

Dr. Keith asked about the area from which the twins were collected.

Dr. Hemon explained they were from Paris, provinces to the East of Paris, and the South of France.

Dr. Keith also asked if the survey was retrospective.

Dr. Hemon said that the survey was prospective, as hospitals were visited weekly to collect data by questionnaire.

Professor MacGillivray asked if placentae were examined.

Dr. Hemon replied that the placentae were not examined systematically, but details were obtained from the hospital notes.

Professor MacGillivray then asked if any studies had been made with regard to maternal height.

Dr. Hemon replied that the apparent effect of maternal height on DZ twinning disappeared when maternal weight was considered.

Professor Leroy asked if the maternal weight data were for prepregnancy weight.

Dr. Hemon confirmed this.

Professor MacGillivray asked how this information was obtained.

Dr. Hemon explained that it was obtained retrospectively by asking the mothers.

Considerable discussion followed with regard to the irregularity and length of the menstrual cycle and the relationship to both DZ and MZ twinning. The relevance of these observations about duration of the cycle to gonadotrophins was also discussed, but no such estimations had been made in Dr. Hemon's study.

Professor Nylander asked if all deliveries were recorded.

Dr. Hemon replied that this was not the case, and therefore matched controls were used.

Dr. Keith inquired about the attitude of women who had twins after induced ovulation in Professor Papiernik's study.

Professor Papiernik replied that they reacted well because of their previous infertility and commented that the outcome was the most important factor – ie, the avoidance of morbidity and also higher multiple births.

Dr. Derom asked how many higher multiple births there were in the sample and how many followed clomiphene therapy.

Professor Papiernik said that there were three sets of triplets and one of quadruplets, none of which followed clomiphene treatment.

Professor Thiery asked if there was any information about triplets following bromocriptine treatment.

Professor Papiernik replied that this information was not available.

Professor MacGillivray commented that higher multiple births would not be expected to increase any way after bromocriptine treatment because of the mode of action.

Professor Nylander asked if zygosity had been determined for each twin or triplet delivery.

Professor Papiernik said that this had not been done.

Professor MacGillivray asked if the falling birth rate in France had been found to affect the twinning rate, as was the case in Scotland.

*The paper by G. Heluin, A. Cabau, E. Papiernik, "Incidence of twin pregnancies: Relation to ovulation inductors", is not published in this issue.

Professor Papiernik in reply said that the rate of twinning had been unchanged during the past century and that the fall in the spontaneous rate of twinning was probably compensated by those multiple births following induction of ovulation.

Professor MacGillivray commented that he thought that this was unlikely to be the case.

Considerable discussion followed about the use of oral contraceptives in young people with consequent delayed parentage, which could have a marked effect on the rate of twinning in such populations because of the age effect. There was some confusion over the use of the term "rebound effect," which was meant in a social sense (later age of delivery subsequent to contraception) and not to imply a hormonal rebound.

Further general discussion followed on the effect of parity on the rate of twinning and the relevance of previous abortions. It was thought that women who have DZ twins are probably more fertile and may therefore have more abortions (induced), but the relevance of spontaneous abortions in this context was not clear.

Professor Thiery asked for clarification of the relationship between the native diet and the twinning rate in Nigeria.

Professor Nylander explained that the twinning rate in the lower social class was much higher (four times) than in the upper class. The diet of the former consisted mainly of yams, cassava, and beans, whereas these items were replaced by potatoes in the latter group.

Professor MacGillivray asked if the diet of the upper social class in Nigeria was similar to European food.

Professor Nylander confirmed this.

Dr. Derom asked if there were evidence of undernourishment in Nigeria.

Professor Nylander replied that this was present to a high degree in the low social class.

Professor Thiery asked for details of the caloric value of the diet in Nigeria.

Professor Nylander said that this information was not available, but that the caloric value was probably similar to that in other parts of West Africa.

In the subsequent discussion it was stated that the diet in Rwanda was poor, but the rate of twinning was the same as that in Belgium.

Professor Nylander said that it was thought that a specific item of diet, rather than the low level of nutrition, might be associated with the very high rate of twinning amongst the Yorubas. This item of food might be yams, from which extracts had been found to have chemical similarities to oral contraceptives.

Professor Leroy commented that the twinning rate had fallen during World War II in Europe.

Professor Nylander confirmed that specific dietary factors rather than undernourishment were probably implicated in Nigeria.

Dr. Lazar asked about possible differences in fertility in relation to social class in Nigeria.

Professor Nylander stated that there might be higher fertility in the lower social class, but that this was difficult to measure.

Dr. Corney asked if, in Japan, where the DZ twinning rate is low, there might be an inhibitory factor in the diet.

Professor Nylander said that there might be lower levels of FSH amongst Japanese people, but that detailed studies in relation to twinning had not yet been made.

Dr. Hemon asked if genetic factors might also be contributing to the high twinning rate in Nigeria.

Professor Nylander replied that genetic studies in Nigeria had not shown the same type of inheritance (for twinning) as previously found amongst Caucasians and that any genetical component might be swamped by the environmental factors.

Dr. Keith commented that the evidence of clustering which had been presented by the speakers and the possible effects of environmental factors suggested that DZ twinning should now be regarded as an unnatural phenomenon similar to congenital abnormalities.

Professor MacGillivray agreed with this observation.

Dr. Zahálková commented that there was also clustering with regard to retinoblastoma in Czechoslovakia, but that this was not in the same places as clustering for DZ twinning.

Professor Papiernik asked for details about determination of zygosity in the study from Czechoslovakia.

Dr. Zahálková replied that the only information available was with regard to sex.

Professor Leroy commented that there was evidence from studies elsewhere for a higher rate of DZ twinning amongst unmarried mothers during the first three months after marriage and after prolonged absence of the husband, and asked if these factors had been considered by the speakers.

A general discussion followed.

Professor Nylander felt that these factors also reflected the fertility rate. Possible variation in the frequency of sexual intercourse in different social classes should also be considered, and this factor might apply after periods of absence by the husband.

Dr. Zahálková commented that, as it was legal to terminate a pregnancy in Czechoslovakia, there would be few unmarried mothers in her sample. It was unlikely that the diet would vary in different parts of the country.

Dr. Jandial and Dr. Campbell asked about seasonal variation in rates of twinning in Nigeria and Czechoslovakia.

Professor Nylander and Dr. Zahalkova replied that there was no evidence of this in either country.

Dr. Lazar asked how social class had been determined in the Nigerian study.

Professor Nylander explained that the survey was a prospective one, and each mother had been asked for details of the economic status of her husband. The social class groups were based on this information and also on literacy.

Dr. Corney asked about the effects of light with regard to variation in twinning rates.

Professor Nylander replied that both rainfall and seasonal variation in light had been considered in Nigeria, but no significant difference had been found.

Dr. Keith asked about higher multiple births in the two studies.

Dr. Zahálková said that the numbers were too small to study in Czechoslovakia.

Professor Nylander said that the numbers of triplets in Nigeria were increased in proportion to the rate of twinning. It was likely that this also applied to quadruplets. The numbers were too small to make any observations about social class with regard to higher multiple births.

Professor MacGillivray commented that, as an improved diet increased maternal weight, the lower social class would be at a disadvantage; thus, a specific item of diet was more likely to be responsible for an increased rate of twinning.

A general discussion followed on American and European diets in relation to those in other countries. It was agreed that various specific items of diet might be related to alterations in twinning rates. It was agreed that the whole matter required further study.

Professor Leroy felt that genetic factors might still be involved and asked if, as in Brittany in France, ethnic origins of the groups had been found to differ from the rest of the country.

Professor Nylander said that blood group studies amongst the Yorubas in Ibadan had not shown any such differences.

Dr. Vlietinck said that in Kinshasa the twinning rate had been found to be unaffected by social class, nutritional status, or the length of time since immigration. However, the rate did appear to be affected by tribe: In Zaire there were several tribes in the same area. He therefore inquired about homogeneity in the Nigerian study.

Professor Nylander replied that only Yorubas were included in the Western Nigerian study, and it was thought that they were homogeneous.