

The 100 who had a successful “take”(75%) donated 215 units (82% plasma and 22% blood).

A detailed informative campaign must be conducted among healthcare personnel. Volunteer qualified blood and plasma donors should be considered as a reliable alternative for special campaigns.

Keywords: adverse events; antibodies; immunizations, mass; immunoglobulin: plasma; plasmapheresis; production; smallpox; vaccination; volunteers

Prehosp Disast Med 2003;18:s(1)s35.

Five Decades of Voluntary Blood-Donation Service

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Secretary General of Slovenian Red Cross

This year, we celebrate five decades of voluntary blood-donation service on the territory of Republic of Slovenia. Actually, this long tradition has its roots in the Partisans’ improvisations during the Second World War. During the period of transition, many of the traditional issues were under question, e.g, where to go and how to find the proper answers on a new challenges? Even during such a turbulent time, everyone involved in the blood-donation process was responsible enough so that today, the Republic of Slovenia is self-sufficient with an adequate and safe supply of blood and its products.

Nowadays, we are faced with reorganization of the transfusion system so that the Slovenian Red Cross, as a major motivator and organizer of volunteers, must work more closely with experts to find a “new” volunteer. Such a volunteer probably works in an office, he (mostly not she) is well-educated, is able to use a personal computer (PC), and can be accessed using a mobile telephone. But, he has no time and is master of his free time. How can this new type of volunteer be motivated?

Another difficult task is to be prepared for all kinds of disaster, and to respond immediately to every request for an extra quantity of a fresh and necessary blood. It means more work not only for volunteers in the branches of Slovenian Red Cross, but also more well-coordinated work between medicals, Red Cross professionals, volunteers, and the Government including their plans and expenses.

Keywords: blood; blood products; coordination; donation; motivation; Red Cross; Slovenia; supplies; transfusion; volunteers

Prehosp Disast Med 2003;18(s1)s35.

Hemopure® (HBOC-201) Compared With Blood (PRBC) for Two-Unit Infusion in Orthopedic Surgery Following Trauma

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Introduction: Approximately 250,000 trauma patients require blood (PRBC) transfusions in the U.S. each year; 50,000 receive two units of PRBC or less.¹ It was hypothesized that such two-unit PRBC exposure could safely be avoided by the alternative use of a hemoglobin-based O₂ carrier (HBOC).

Methods: The physiological changes and adverse events (AEs) within 24 hours of a two-unit HBOC infusion of Hemopure (n = 34) were compared with two units of

PRBC (n = 28) in 62 patients who had sustained blunt trauma and who underwent orthopedic surgery.

Results: 14/28 (50%) PRBC and 25/34 (74%) HBOC-201 patients had mean values of 1.04 (CL = 0.54–1.53) and 1.44 (CL = 0.96–1.92) AEs as defined by the U.S. Food and Drug Administration (FDA), respectively. Five HBOC-201 and four PRBC patients had cardiovascular AEs; seven HBOC-201 and four PRBC patients had gastrointestinal AEs; and three HBOC-201 and one PRBC patient had pyrexia. Other AEs were numerically and systematically no different. Serious AEs with HBOC-201 included one vascular (HTN) and one respiratory failure. Mean and 95% confidence limits (CL) of serial hemoglobin concentrations [Hb] and systolic blood pressures (SBP) are shown in Table.

	Total Hb g/dl ^{1,2}	
	HBOC-201	PRBC
Baseline	8.8 8.4-9.2	8.5 8.1-8.9
Post 2 unit ¹	8.7 8.1-9.2	10.3 9.7-10.9
24 hrs	8.5 7.6-9.3	10.0 8.5-11.5

	Plasma Hb g/dl ¹	
	HBOC-201	PRBC
Baseline	0.04 0.0-0.1	0.01 0.0-0.01
Post 2 unit ¹	1.5 1.3-1.8	0.0 0.0-0.01
24 hrs	1.4 0.4-2.3	0.01 0.0-0.02

	Met Hb ³	
	HBOC-201	PRBC
Baseline	0.9 0.6-1.1	0.9 0.6-1.3
Post 2 unit ¹	2.6 1.8-3.4	1.0 0.7-1.3
24 hrs	3.9 3.0-4.7	0.6 0.2-1.0

	Systolic BP(SBP)mmHg	
	HBOC-201	PRBC
Baseline	125 (117-134)	118 (110-126)
Post 2 unit ¹	135 126-143)	129 (121-137)
24 hrs	146 (135-158)	128 (116-140)

¹ = 27/34 OX and 24/28 PRBC Samples

² = 32/34 OX 28/28 PRBC data

³ = not all patients sampled

Discussion: Pyrexia, mild HTN, and gastrointestinal symptoms following HBOC are well recognized.² A two-unit HBOC-201 infusion (60 g/dL Hb) would be expected to elevate plasma Hb by approximately 1.5–1.7 g/dL. The low plasma Hb in these blunt trauma patients may reflect either the oncotic effects or pharmacokinetics of HBOC-201 or an interstitial leakage of plasma Hb. Use of HBOC-201 could save 100,000 PRBC and avoid blood exposure by 20–25% or more nationwide.

Conclusion: Infusion of two units of HBOC-201 has the advantage of similar overall AEs to the infusion of PRBC and of avoiding allogenic blood exposure. And the use of

HBOC-201 would reduce the national blood requirements for trauma patient orthopedic surgery.

References

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2. Viele MK, Weiskopf RB, Fisher D: Recombinant human hemoglobin does not affect renal function in humans: Analysis of safety and pharmacokinetics. *Anesthesiology* 1997;86:848.

Keywords: adverse events; blood pressure; blood substitutes; hemoglobin; Hemopure; orthopedics; oxygen carriers; packed red blood cells; surgery; transfusions; trauma

Prehosp Disast Med 2003;18:s(1)s36.

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Autologous Fibrin Glue: Synthesis and Application

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The idea of treating injured parts of the human body with simple gluing dates back to ancient times. Sparked by the research of J.J. Park and U.S. Weis-Fogh, this study focuses on the synthesis of the two components of an autologous fibrin glue.

The aim of this review is to demonstrate how a sufficient amount of both components of the fibrin glue can be acquired from small amounts of blood from the surgical patient. The first component, fibrinogen, can be obtained according to the modified Cohn-method using ethanol and freezing. The second component, thrombin, can be extracted by means of chemical precipitation with acid.

The synthesis of autologous fibrin glue is quick, simple, and inexpensive; and it has been shown to rapidly heal the surgical wounds of patients. Most important, with the application of autologous fibrin glue, there is no risk for transmission of blood-borne diseases or other undesired side effects.

Keywords: advantages; application; autologous fibrin glue; blood-borne diseases; glue; healing; side effects; synthesis; wounds, surgical

Prehosp Disast Med 2003;18:s(1)s36.

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Self-Sufficiency: The Present Method of Blood Supply for Slovenia

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Immediately after World War II, transfusion institutions were established in Slovenia: the first was in Ljubljana, and others followed at larger hospitals. Ever since our establishment, we have been demonstrating our self-sufficiency. Even in our past history, we have marched as equals alongside our colleagues from Europe and America, which has been documented by our decades of experience and our achievements.

Keywords: self-sufficiency; Slovenia; transfusion institutions

Prehosp Disast Med 2003;18(s1)s36.

WHO Approach to Quality and Safety: The WHO Quality Management Programme for Blood Transfusion Services

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Objective: Quality management in all areas of blood transfusion is crucial for the provision of a safe and adequate blood supply. In 2000, the World Health Organization (WHO) launched an innovative global programme, "Quality Management Programme (QMP) for Blood Transfusion Services" in order to assist and support Member States in the development of quality systems for blood transfusion services.

Methods: The QMP has been developed as a long-term programme in collaboration with WHO Regions, Collaborating Centres, and Experts in Transfusion Medicine. The major components of QMP are: (1) Identification and strengthening of regional quality training centers; (2) Organization of Quality Management Training (QMT) courses with a well-structured curriculum; (3) Development of advocacy, training, and learning materials to support the implementation of the programme; (4) Establishment of external quality assessment schemes (EQAS); and (5) Creation of effective quality networks. Activities in this programme have been carried-out in all of the WHO regions since 2000.

Results: Consultations for the planning and evaluation of QMP were conducted in 2000. Global endorsement and support was obtained from the WHO Regions as well as from the experts. Implementation of QMP includes training of blood transfusion staff as quality managers with responsibility for establishing quality systems at national level. Regional quality training centres, each with dedicated QMT coordinators, have been identified as focal points for this network. Key achievements in this programme have been: (1) The conduct of 20 QMT courses in three years (2) Training of 65 global and regional facilitators; (3) Training of 350 quality managers from 121 countries; (4) Introduction of the programme to 240 directors of blood transfusion services; and (5) Increased participation of centres, now 257, in WHO-EQA Schemes.

Conclusion: The establishment and implementation of quality management systems in blood transfusion services through this collaborative programme will lead to improvements in the safety, adequacy, and quality of blood for all patients requiring blood transfusion. This will be a major step towards achieving the ultimate goal of global blood safety.

Keywords: advocacy; blood; centers; consultation; management; networks; quality; safety; systems; training; transfusion; WHO

Prehosp Disast Med 2003;18(s1)s36.