February 2011

Safe blood transfusion practices in blood banks of Karachi, Pakistan

M. Kassi
Aga Khan University

A. K. Afghan
Aga Khan University

M. R. Khanani

I. A. Khan
Aga Khan University

S. H. Ali
Aga Khan University

Follow this and additional works at: http://ecommons.aku.edu/pakistan_fhs_mc_bbs
Part of the Physiology Commons

Recommended Citation
Available at: http://ecommons.aku.edu/pakistan_fhs_mc_bbs/126
Safe blood transfusion practices in blood banks of Karachi, Pakistan

Department of Biological and Biomedical Sciences, Aga Khan University, and Department of Microbiology, Dow University of Health Sciences, Karachi, Pakistan

Received 1 April 2010; accepted for publication 6 September 2010

SUMMARY

Background: Since 1997, legislations pertaining to safe blood transfusion (SBT) have evolved considerably in Pakistan. The objective of this study was to evaluate the SBT practices in the blood banks of Pakistan.

Methods: Twenty-three blood banks were randomly selected from a list of registered 40 in Karachi, the largest city in Pakistan. To evaluate the SBT practices in the selected blood banks, a questionnaire and a checklist were administered during 2007–2008.

Results: Of the 23 blood banks surveyed, 4 (17%) were affiliated with government or a semi-government institution; 16 (70%) blood banks had a healthy donor recruitment program and 2 (9%) of the blood banks agreed that they recruited remunerated (paid) blood donors. Donors were screened for HIV, Hepatitis B, Hepatitis C and syphilis by all 23 blood banks, whereas malaria was screened by all blood banks but one.

Conclusion: SBT practices in Karachi have improved since 1995; an active role by the government in policy-making has proven effective.

Key words: safe blood transfusion, Pakistan, blood bank.
have been amended over time to conform to the current international guidelines. The WHO guidelines for SBT were reviewed under the Millennium Development Goals (MDGs) of 2000, aiming to restructure SBT practices across the world (WHO Programmes and Projects, 2008; Orton et al., 2000; Koistinen, 2008). With regard to blood banks, these guidelines had the following primary recommendations: (i) implementation of coordinated national blood transfusion service, (ii) recruitment of non-remunerated and voluntary blood donors, (iii) biological testing for transfusion-transmitted infections and (iv) working on an expanded quality system program (WHO Programmes and Projects, 2008).

Karachi, Pakistan’s economic hub, has an estimated population of 12.5 million, larger than any other city in Pakistan. With the indicated population, Karachi is bound to have a high requirement for blood and its products. Therefore, SBT becomes an important concern. Indeed, an important component of implementation of SBT legislations is constant monitoring and assessment of safe practices in the blood banks.

The purpose of our study was to evaluate SBT practices in registered blood banks of Karachi and compare these results with data collected before the inception of SBT legislations in Karachi (Luby et al., 2000).

METHODOLOGY

From a list of 40 registered blood banks in Karachi, 26 were randomly selected and administered a questionnaire and a checklist. Blood banks included in the study were all government-registered and consented to participate in the study. The study was conducted during the year 2007–2008.

The administered questionnaire covered the components on general blood bank information, aspects of donor physical and clinical examination carried out by the blood bank, nature and quality of blood products and other facilities available in the blood bank. The checklist evaluated storage temperature of blood and blood products, and sterility of the equipments. Items evaluated by the questionnaire and the checklist were based on current WHO guidelines on SBT (WHO Programmes and Projects, 2008).

RESULTS

Donor services

Of the 26 blood banks surveyed, 23 blood banks consented to participate in the study. All of these blood banks were registered under the Sindh Blood Transfusion Act of 1998. Eleven (48%) were under control of a private institution and eight (35%) under a non-government organisation (NGO). Two (9%) blood banks were affiliated with the government and an equal number was associated with semi-government organisations (Fig. 1a). The number of annual blood donations was less than 3000 in seven facilities, 3000–10 000 in nine and greater than 10 000 in seven (Fig. 1b).

Regarding general blood bank practices for donations, 21 blood banks recruited non-remunerated donors; however, 2 (9%) blood banks admitted giving monetary compensation occasionally. Fourteen (61%) blood banks claimed to promote donor motivation through information brochures and 16 (70%) blood banks kept track of healthy donors, who were frequently asked to donate blood. Confidentiality was maintained in 22 (96%) of the blood banks, where the results of their blood screens were handed over only to the donor (Fig. 1c).

All blood banks claimed to have trained technicians and 22 (96%) reported to have pathologists working at their facility. However, a certified physician or hematologist was found to be present in, respectively, 11 (48%) and 12 (52%) of the facilities. Paramedic staff were present only in two (9%) facilities, whereas trained data managers were present in three (13%) blood banks (Fig. 1d).

Components of donor’s clinical history and physical examination

Fifteen (65%) blood banks gathered adequate information about sexual practices and 16 (70%) questioned about the history of sexually transmitted diseases. Medication history was ignored in four (17%) blood banks. Only seven (30%) blood banks questioned regarding travel history (Fig. 2a).

Jaundice and needle marks on body were checked by 14 (61%) and 15 (65%) blood banks, respectively. Three (13%) blood banks did not question female donors about lactation and pregnancy. Twenty-two (96%) measured donor’s weight and height, whereas all blood banks enquired about donor’s age and blood pressure (Fig. 2b).

When blood banks were observed about their SBT practices, discrepancies were observed: Of 17, only 15 blood banks were found to profile donor clinical history, and only 14 performed donor’s physical examination.

Quality control of blood products

Among the 17 blood banks surveyed, the available blood products included platelets, fresh frozen plasma, cryo-precipitate and packed cells (Fig. 3a). Varying temperatures for storing blood were noted in different facilities. Of the 23 blood banks surveyed, 17 stored blood at temperatures between 4 and 6 °C, whereas 3 stored at...
SBT practices in Pakistan

For this study, various aspects of SBT practices, as recommended under the SBT legislations in Pakistan and WHO guidelines, were evaluated. Overall, blood banks that we surveyed for this study were found compliant with the legislations. Luby et al (2000) conducted a similar study on blood banks of Karachi before implementation of the provincial SBT policy. According to that study the SBT practices fell well below the standards set by the WHO at that time.

In the current situation, improved quality control of blood services was reflected by a greater number of trained personnel working in blood banks. At least one qualified pathologist or hematologist was present in all the blood banks that we surveyed, whereas only 53% of the blood banks were headed by pathologist or hematologist in the previous study (Fig. 1d). Previously, 83% phlebotomists had received basic technician training, although recent figures show that all blood banks had trained technicians (Rajabali et al., 2009).

Improvements were seen in regard to healthy donor recruitment and motivation. The number of banks utilising paid donors had declined from 50 to 9%. Previously, efforts for healthy donor recruitment were noted in fewer blood banks, whereas currently 70% of the blood banks surveyed had a healthy donor recruitment policy and 61% motivated donors through advertisements and brochures (Fig. 1c) (Rajabali et al., 2009).

Profiling of donor’s clinical history was found considerably improved since the 1995 survey, especially regarding the aspects of injecting drug users, sexual

© 2010 The Authors
Transfusion Medicine © 2010 British Blood Transfusion Society, Transfusion Medicine, 21, 57–62
Fig. 2. Aspects of donor screening. (a) Aspects of donor clinical history covered by the blood banks surveyed. (b) Components of donor physical examination covered.

history, history of sexually transmitted diseases and of blood transfusions and donations (Fig. 4a). Similar improvement was also observed with donor’s physical examination in components of weight and height, blood pressure, jaundice and needle marks (Fig. 4b).

A remarkable improvement was seen in the screening process for transfusion-transmitted infections, as the current survey found that all the blood banks surveyed screened for Hepatitis B, Hepatitis C and HIV, compared to previous figures of 95, 17 and 52%, respectively. Furthermore, blood banks were noted to have now started screening for two new blood-borne infections, namely, syphilis and malaria (Fig. 4c). In most blood banks surveyed, the said screening tests were performed by rapid tests or by semi-automated enzyme immunoassay (EIA).

Despite the improvements observed in blood bank practices, our results showed certain essential aspects of SBT that are still lacking in Pakistani blood banks. Some of the blood banks surveyed, for instance, did not conduct verbal screening and physical examinations to qualify donors as healthy. Blood safety is ensured by a sensitive physical as well as verbal screening process. Deferring high-risk donors at the time of interview may effectively reduce the cost of screening test as well as reduce the risk of infection transmission. In almost one-third of the blood banks we surveyed, certain essential components of donor evaluation were not covered: lapses were noted in the pre-donation interviews; history taking regarding sexual behaviour and sexually transmitted diseases, which are considered

Fig. 3. Availability, storage and disposal of blood and blood products. (a) Blood components availability in the blood banks surveyed. (b) Storage temperature of blood and blood products observed in the blood banks. (c) Method of disposal of blood waste products practiced by the blood banks.
SBT practices in Pakistan

Fig. 4. Safe blood transfusion practices in the pre- (solid bars) and post-legislative (open bars) periods: results of current study are compared with a previous survey of blood banks (Luby et al., 2000). Asterisks indicate areas that were not surveyed in the previous study. (a) Aspects of donor clinical history. (b) Aspects of donor physical examination. (c) Screening tests for blood-borne infections performed by the blood banks.

to be important deferral criteria, were not addressed. Additionally, majority of the blood banks surveyed did not enquire about jaundice and needle marks.

A small number of blood banks we surveyed were found to provide monetary compensation to blood donors. In Pakistan, most people who sell blood belong to groups of intravenous drug abusers, who need money to buy drugs. According to certain estimates, 5–10% of HIV infection in South East Asia is transmitted through blood transfusions (Sharma, 2000; Bihl et al., 2007). Blood transfusion by voluntary non-remunerated blood donors is considered safer and more reliable than both family and replacement donors (Orton et al., 2000; Koistinen, 2008). A large-scale study comparing the prevalence of blood-borne infections among paid and non-paid donors in Pakistan should clearly reveal the impact of donor remuneration on the SBT practices.

There is sufficient information to suggest that motivational counselling regarding blood transfusion increases willingness to donate blood (Orton et al., 2000) and may therefore be more effective than monetary incentives in recruiting healthy donors. A record of infectious disease markers should be maintained for all donors so that the prevalence of infections in the new and returning donors may be compared. This will help in determining the impact of counselling, motivation and screening on disease prevalence among blood donors.

Efforts are being made to centralise the blood transfusion services in Karachi, along with a network for immune-hematological workup and blood distribution.

WHO recommends that for sustainable blood transfusion services, national coordination is necessary (WHO Programmes and Projects, 2008). Currently in Pakistan, regional ordinances exist but there is no single entity unifying them. Although all districts in Pakistan are ruled over by similar SBT acts, there is still no single national policy. Keeping the current situation in view, Pakistan needs a national blood service system that regulates SBT acts and ensures compliance through regular audits. The advantages of which are manifold, including sustainability of funding, efficient utilisation for human and economical resources, and uniformity of quality management and product quality standards (Koistinen, 2008).

ACKNOWLEDGMENTS

This study was partly funded by the Higher Education Commission, Pakistan, grant 20-775, and Pakistan Science Foundation, Pakistan, grant 232.

REFERENCES


