

Role of Informed Parental Care and Institution Quality Control Assurance in Long Term Safe Blood Transfusion

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Abstract

To achieve adverse reaction free human blood transfusion over a prolonged time is remarkable. This paper is about a female patient who has B thalassaemia major and who has received about 722 units of blood over the last 33 years in our hospital. During this period she did not contract any of the transfusion transmittable diseases and is currently active and academically accomplished. We wish to emphasise that in this case prudent selection of healthy voluntary donors, parental care and proper quality control in donor blood screening and transfusion processes are the major factors contributing to the successful outcome.

Introduction

Blood transfusion is life saving in situations like blood loss due to trauma or surgery and in patients with a severe blood disease like thalassaemia, haemophilia, sickle cell anaemia etc. Patients with any of these severe blood diseases may require frequent blood transfusions. Great care has to be taken in cross matching and screening especially in patients receiving repeated blood transfusions.^{1,2} Since a number of infectious diseases like HIV, Hepatitis B and C, Syphilis etc. can be passed from donor to the recipient, very strict human blood transfusion standards have to be maintained. This includes screening for potential risk factors and health problems among donors and thorough laboratory testing of donated units for infection.³

There have been reports about newly discovered transfusion transmittable hepatitis G virus which is prevalent in children who received multiple transfusions for B-thalassaemia major.⁴ To avoid such incidents proper quality management in the blood transfusion laboratory is essential. Continuous haemo vigilance and quality assurance will help to reduce the hazards associated with transfusion.^{5,6}

The aim of this paper is to highlight the major role of some important factors such as selection of prospective donors, good quality control management at the clinical laboratory and parental care and support in the successful and safe multiple blood transfusion over the long run. We want to emphasise these facts using this case study of a young lady who has received multiple blood transfusion at this hospital for a period of 33 years without any blood transfusion related disease like hepatitis, immuno deficiency state etc.

Case Report

A case of B Thalassaemia major has been receiving

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blood transfusion in this hospital since 1975 till date. The patient has received so far 712 units of blood over the last 33 years. The patient requires a blood transfusion of 1 unit every 15 days to maintain a haemoglobin level of 9 to 10 mg/dl. The tests performed on the donors blood included ABO blood typing, Rh(D) blood group antigens, haemoglobin %, liver function tests, screening for hemiparasites, VDRL test, test for HIV, tests for hepatitis A, hepatitis B surface antigen and hepatitis C by ELISA. The positive results for HIV of hepatitis were confirmed by PCR and those units which test reactive in any test were sent for disposal. Iron overload due to repeated blood transfusion was countered in the patient by desferioxamine injection given subcutaneously using an infusion pump. The patient is currently active and has completed her doctorate!

Discussion

Our primary goal over the last 3 decades have been transfusion of sufficient and safe units of blood so that there has been maximum efficiency and minimum risk to both donors and recipients. The fact that this patient has not contracted any disease due to blood transfusion or showed adverse reactions during or after 722 blood transfusions over a period of 33 years highlights the diligent practice of internal and external quality control by the health care personnel and technologists at our laboratory of clinical medicine.

At our hospital Good Laboratory Practice (GIP) has been followed in every aspect i.e., identification and selection of healthy blood donors, adequate amount of blood collection and thorough screening of blood by the clinical laboratory to ensure safety to the patient. There have been regular blood transfusion results overseeing committee meetings and corrective measures implementation. As part of internal quality control the functions of reagents, equipments and techniques in the clinical lab have been vigilantly monitored. On the side of external quality control the reagents and techniques have been assessed by an external testing agency periodically.

Yet another factor of significance that comes to the limelight in the case is the role of family members especially that of parents. The patient's father requires a special mention because he has taken enormous effort to select appropriate and healthy blood donors and mobilize them, so that safe and efficient blood transfusion is achieved. All the donors of blood for this patient were voluntary donors who were mobilised to the hospital blood bank by the patient's father. This voluntary donor only decision was being followed by the patient's father long before this policy became mandated by the authorities. His sustained and consistent support during the last 33 years in this activity to achieve risk free blood transfusion is highly commendable.

Conclusion

There are certain critical points in the blood transfusion chain where errors can occur. Adherence to quality at these important junctures like selection of appropriate healthy volunteers for blood donation, and good laboratory practice in screening of blood for infection will reduce or even nullify adverse events associated with blood transfusion, last but not the least. Awareness and co-operation of the family members and that too parents in particular will make patients with transfusion dependent blood diseases like thalassaemia free of transfusion transmittable diseases.

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XDR TUBERCULOSIS CAN BE CURED WITH AGGRESSIVE TREATMENT

Multidrug-resistant (MDR) tuberculosis can be effectively treated with second-line regimens, improvements in resistance testing have revealed what is now defined as extensively drug-resistant (XDR) tuberculosis, defined as MDR tuberculosis with additional resistance to the two most important second-line classes (fluoroquinolones and the second-line injectable agents).

A considerable proportion (about 7%) of these cases are found to have XDR tuberculosis when tested.

Patients with XDR tuberculosis were not differentiated from those who have MDR tuberculosis and enrolled in the treatment programme. All patients were treated with a regimen that aimed to include five effective antituberculosis drugs on the basis of in-vitro testing of drug susceptibility and previous treatment. Additionally, a fluoroquinolone (ofloxacin or levofloxacin), together with the second-line injectable capreomycin, was included in regimens **even when drug resistance was found** although not counted as part of the five effective drugs).

In Keshavjee and colleagues study, this aggressive approach, which included the full range of available second-line agents from the outset, contributed to the successful treatment of two-thirds of patients with MDR tuberculosis but without the XDR form, and nearly half of those with XDR tuberculosis.

Keshavjee and colleagues have shown that both MDR and XDR tuberculosis can be cured with aggressive treatment, with use of the most effective antituberculosis drugs available.

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