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Short Communication

Transfusional Infectious Risk in a Paediatric Ward, Niger

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Abstract

Blood transfusion involves risks that maybe life-threatening. Infectious risk is serious in Niger with the significant prevalence infections among blood donors. The objective of this study is to evaluate transfusional infectious risks in paediatric settings in two national hospitals of Niamey in Niger. This was a prospective cohort study in the paediatric ward of two national hospital of Niamey. The study population consisted of transfused children. Before transfusion, biological tests for malaria, HIV, hepatitis and syphilis were performed. Post-transfusion follow-up appointments were given on day 7 for malaria, and three months later for HIV, hepatitis and syphilis. Two hundred and forty (240) children were included. Before transfusion, all children have been tested negative for HIV, HBV, HCV, and BW. The same was true for the blood bags to be transfused. Of the 240 children, 72.5% had a positive thick and thin smear. One hundred and twenty-four (124) patients had completed the follow-up appointment (51.7%). In the group of children who had negative thick and thin smear (n=66), 80% were positive at control with a significant relationship (p = 0.001). For serologies, three children (2.4%) had HBV positive. No cases of HIV or HCV detected. Reinforcement of measures would be necessary to increase transfusion safety. The introduction of malaria screening in qualification tests of blood donations will limit risks of transfusional malaria.

Keywords: Transfusion; Infection; Children; Niger

Introduction

Blood transfusion involves risks that maybe life-threatening [1]. In low-income countries, up to 65% of blood transfusions are given to children under 5 years of age [2]. Infectious risk is more serious in Niger with the significant prevalence of HIV, HBV and HCV infections among blood donors [3]. The objective of this study is to evaluate transfusional infectious risks in paediatric settings in Niger.

Patients and Methods

This was an observational study of a prospective cohort, from January to September 2017 in the paediatric wards of two national hospitals of Niamey. The study population consisted of transfused children. All parents of children have been informed and have given their consent prior inclusion. Before transfusion, biological tests were performed: thick and thin smear, HIV serology, hepatitis (HBV, HCV) and syphilis serology (BW). Post-transfusion follow-up appointments were given on day 7 for malaria, and three months later for HIV, HBV, HCV and syphilis.

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Data were analyzed using Epi info 7.2.2.1 software. Pearson's and Fischer's Chi² tests were used ($p < 0.05$).

Results

Two hundred and forty (240) children aged 1 to 15 years were included. Age group from 6 months to 5 years was the most represented (84.1%). The sex-ratio was 1.1. Before transfusion, all children have been tested negative for HIV, HBV, HCV, and BW. The same was true for the blood bags to be transfused. Red blood cell concentrates were requested in all cases. Whole blood was served in 84.5% of the cases. Of the 240 children transfused, 72.5% had a positive thick and thin smear on admission. One hundred and twenty-four (124) patients had completed the follow-up appointment (51.7%). In the group of children who had negative thick and thin smear (n=66), 80% were positive at control with a significant relationship *($p = 0.001$)*. For serologies, three children (2.4%) had HBV positive. No cases of HIV or HCV detected.

Discussion

Despite transfusion safety, risk of transfusional transmitted infection is real. Transfusional malaria was found in 80% (4/5) of patients at control. The link between transfusion and malaria was very probable. This situation occurs very frequently in malaria endemic zones [4-6]. It could be justified by the failure to screen for malaria in blood qualification in areas of stable malaria endemicity, or because of sub-microscopic infections. Pre-transfusion screening in donors could be done by thick and thin smear or by PCR. Unfortunately, it could significantly reduce the number of blood bags available in a recurrent context of shortage of blood donation. To overcome this problem, some authors have recommended systematic anti-malaria

prophylaxis in transfused children [4,7]. No case of HIV or syphilis have been found, unlike hepatitis B. Frequent infections have been reported in paediatrics in varying proportions [1,8-10]. These observations show the need to maintain good hepatitis B vaccine coverage in both children and adults. Preventing sexually transmitted diseases should also be strengthened. The parents of all children with positive hepatitis B serologies were informed and the children were cared for. Blood transfusion constitutes a significant risk of exposure for children.

Conclusion

The usual precautions based on haemovigilance rules are important because transfusion is not without risk. Reinforcement of measures would be necessary to increase transfusion safety. The introduction of malaria screening in qualification tests of blood donations in the same way as serology will limit risks of transfusional malaria.

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