INCIDENCE, ASSOCIATED FACTORS AND IMMEDIATE OUTCOMES OF ACUTE TRANSFUSION REACTIONS AMONG BLOOD RECIPIENTS IN MULAGO HOSPITAL

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ABSTRACT

Background: Blood transfusion is an indispensible component of medicine. However, this sometimes life saving intervention may result in adverse events or acute transfusion reactions (ATRs). The defined ATRs include: acute hemolytic reactions, febrile non-hemolytic reactions, and allergic reactions, transfusion associated cardiac overload, transfusion related acute lung injury and isolated hypotension. Though mostly benign, ATRs may result in serious morbidity and may be fatal. Unlike in developed countries, in developing countries such as Uganda, data on ATRs is scarce and very limited. Published data on transfusion in Uganda revealed several gaps in collection, processing and storage of blood, laboratory work up and bedside transfusion practices. Together with a reported high prevalence of red blood cells alloimmunisation predisposes blood recipients to an increased risk to transfusion reactions. It is therefore important to determine the risks of transfusion reactions against its anticipated benefit, outcomes and determine factors associated to their occurrence.

Objectives: To determine the incidence of acute transfusion reactions, their associated factors and immediate outcomes among red blood cell recipients at Mulago National Referral Hospital (MNRH).

Methods: A two month prospective study was conducted on MNRH medical, surgical and pediatric medical wards between the November and December, 2011. We consecutively recruited all accessible patients who required day time blood (whole blood and packed cells) transfusions excluding the intra-operative cases. Patient's medical status was recorded before, during and 4 hours after transfusion, and monitored for occurrence of any acute transfusion event (ATE). Those with ATE were re-evaluated at 24 hours post transfusion. ATE was defined as any transfusion related adverse event that significantly affected the patient's medical condition and required specific management. ATRs were defined according to the Canadian Transfusion Transmitted Surveillance System, 2007. Three independent physicians reviewed all the transfusion events reports and clinical notes. The presence, type, imputability and severity of ATRs were adjudicated by consensus of two of the three physicians [Delphi method].

Results: A total of 507 red blood cell recipients were recruited and analyzed. There were 53 ATEs of which 49 (9.7%) were confirmed to be ATRs by physician consensus: 24 (49%) febrile non hemolytic, 6 (12.2%) minor allergic, 2 (4%) acute hemolytic, 5 (10.2%) transfusions associated cardiac over-load (TACO) and 2 (4%) isolated hypotension reactions. 9 (18%) of the ATRs were categorized as unclassified hypotension, hypertension or tachycardia reactions. The majority of the ATRs 37 (76%) were minor or severity grade 1 with no serious outcomes, 11 (22.4%) reactions were severe or grade 2 associated with prolonged hospitalization, and only 1 (2%) grade 4 (death) reaction. Imputability of ATRs was definite, probable or possible in 45 (92%) of the ATRs reported. Of the lack of cross match [P-value <0.001; CI: 1.9-50.4], and transfusion with whole blood [P-value 0.003; CI: 0.21-0.74] were significantly associated with the occurrence of ATRs.

Conclusion: Given the high incidence of ATRs among red blood cell recipients in this study, there is need to streamline the transfusion process and put in place transfusion protocols to guide transfusion practices in MNRH, and to adhere to standard laboratory practices including proper standard grouping and cross matching of all blood samples before transfusion. The importance of close monitoring of transfusion recipients for early detection of ATRs is recommended.

Lastly, clinicians should have a high index of suspicion for ATRs and promptly report any such reactions to the hospital transfusion committee.