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Original article

Unreliable patient identification warrants ABO typing at admission to check existing records before transfusion

Manque de fiabilité de l'identité des patients et groupe d'identitovigilance ABO

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Abstract

Background and objectives. – This study describes patient identification errors leading to transfusional near-misses in blood issued by the Alps Mediterranean French Blood Establishment (EFSAM) to Marseille Public Hospitals (APHM) over an 18-month period. The EFSAM consolidates 14 blood banks in southeast France. It supplies 149 hospitals and maintains a centralized database on ABO types used at all area hospitals. As an added precaution against incompatible transfusion, the APHM requires ABO testing at each admission regardless of whether the patient has an ABO record. The study goal was to determine if admission testing was warranted.

Materials and methods. – Discrepancies between ABO type determined by admission testing and records in the centralized database were investigated. The root cause for each discrepancy was classified as specimen collection or patient admission error. Causes of patient admission events were further subclassified as namesake (name similarity) or impersonation (identity fraud).

Results. – The incidence of ABO discrepancies was 1:2334 including a 1:3329 incidence of patient admission events. Impersonation was the main cause of identity events accounting for 90.3% of cases. The APHM's ABO control policy prevented 19 incompatible transfusions. In relation to the 48,593 packed red cell units transfused, this would have corresponded to a risk of 1:2526.

Conclusion. – Collecting and storing ABO typing results in a centralized database is an essential public health tool. It allows crosschecking of current test results with past records and avoids redundant testing. However, as patient identification remains unreliable, ABO typing at each admission is still warranted to prevent transfusion errors.

Keywords: ABO typing errors; Patient identification events; Impersonation; Transfusion errors

Résumé

Contexte. – Cette étude rapporte les erreurs d'identification de patients détectées par l'établissement français du sang Alpes-Méditerranée (EFSAM) pour les hôpitaux de l'Assistance publique de Marseille (APHM) pendant 18 mois. L'EFSAM regroupe 14 sites d'immuno-hématologie–Délivrance du sud-est de la France. Il délivre ou distribue à un total de 149 établissements de soins et maintient une base de données centralisée des groupages ABO qu'il réalise. En vue de prévenir des accidents d'incompatibilité ABO, l'APHM prescrit un groupe d'identitovigilance ABO à chaque admission impliquant un épisode transfusionnel, pour les patients déjà groupés deux fois. Le but de l'étude était de déterminer si cette politique est pertinente.

Matériels et méthodes. – Les discordances de résultats ABO entre l'échantillon du jour et les données historiques ont été investiguées. La cause de chaque discordance était classée en erreur de prélèvement ou d'identité, laquelle était ensuite conclue homonymie ou usurpation d'identité.

Résultats. – L'incidence des discordances ABO étaient de 1:2334, celle des problèmes d'identité de 1:3329. L'usurpation d'identité était la principale cause (90,3 %). La politique de groupage ABO d'identitovigilance APHM a prévenu 19 transfusions incompatibles. Au regard des 48 593 concentrés de globules rouges transfusés, ceci correspond à un risque de 1:2526.

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Conclusion. – La conservation des groupages ABO en base de données centralisée est un outil essentiel pour la sécurité sanitaire, permettant de confronter le résultat du jour avec les historiques, tout en limitant les examens redondants. Néanmoins, l'identité du patient n'étant pas fiable, un groupage d'identitovigilance à chaque admission nécessitant un besoin transfusionnel contribue à prévenir les erreurs transfusionnelles ABO.

Mots clés : Erreur de typage ABO ; Erreur d'identification patient ; Usurpation ; Erreur transfusionnelle

1. Introduction

Typing errors in the blood banking delivery process are commonly reported. Linden et al. estimated the risk of erroneous administration of blood at 1 in 19,000 red blood cells (RBCs) units transfused and the risk of fatal acute haemolytic transfusion reaction due to errors at 1 in 1,800,000 units [1]. Previous studies on ABO typing errors have described various causes including phlebotomy errors (13% in Linden et al.) [1] and transfusion to incorrect patient (38% ibid) [1].

Many errors involved multiple causes including failure of bedside staff to detect that an incorrect unit had been issued. A few studies have documented the essential role of attentive bedside control in preventing transfusion of an erroneous component issued by the blood bank. Linden reported such near-misses in 49 cases involving 7,242,916 red blood cells (RBCs) units transfused for a risk of 1:147,815 [1]. In a 6-year study, Maskens et al. [2] reported 986 ABO incompatible transfusion near-misses events (164 per year) all due to wrong-patient errors. Constant vigilance of blood bank staff and clinical teams has been crucial in preventing incompatible transfusion in 95% of the cases.

Another key preventive measure during the blood delivery process involves strict patient specimen labelling requirements to prevent misidentification. Labelling requirements include stringent specimen acceptance criteria at the blood bank and cross-checking current and previous patient grouping results [3–5]. Process failure rates estimated by recording mislabelled and miscollected samples range from 6.1 to 13.0:1000 [6,7] and 0.35 to 0.5:1000 [6–9] respectively. Regarding the incidence of patient specimen collection errors, Lumadue et al. reported that the risk of the blood in a tube not being that of the patient identified on the label is 40 times higher if labelling requirements have not been stringently followed [7].

Despite preventive measures like stringent criteria for sample acceptance, miscollected specimens, also called wrong blood in tube (WBIT), represent a persistent risk that is particularly high if pretransfusion cross-matching is based on the observed ABO results. These near-miss events have probably been underestimated since the ABO group may match the record of the patient named on the tube. In this regard, Valenstein and Sirota stated that using ABO compatibility as a case-finding method likely reveals only about one-third of actual identification errors [5].

Numerous studies have described patient misidentification detected by bedside control [1,10], and/or wristband check [2,11,12]. However, less attention has been given to identification errors involving namesake, i.e., name similarity issues [13,14], and impersonation, i.e., fraudulent identity documents. Linden et al. [1] and Dunn and Moga [14] stated that name similarity was the most frequent risk factor for misidentification. Valenstein and Sirota reported that incorrect matching during admission was a common cause of misidentification in the outpatient setting [5]. Unfortunately, the incidence of these events has not been estimated. The impact of impersonation has been completely neglected in studies focusing on clinical and transfusion services.

In the present study, we describe patient identification errors detected over an 18-month period in blood issued to the Marseille Public Hospital System (APHM) by the Alps Mediterranean French Blood Establishment (EFSAM). To ensure delivery of the right blood to the right patient, the issuing process includes a number of policies and processes including systematic blood typing at each admission for patients requiring transfusion. The purpose was to determine if admission testing was warranted.

2. Materials and methods

This study covers red blood cell (RBC) units delivered to the APHM by the EFSAM and immuno-hematology tests performed by EFSAM before issuing the RBC, from January 2013 to June 2014. The APHM manages 4 public hospitals with a total of 3500 beds. During the study period, these facilities provided 1,700,000 outpatient consultations, 340,000 emergency care treatments, 8900 childbirths, and 190,000 hospitalizations. The EFSAM consolidates 14 blood banks in the southeast France. During the 18-month study period, the EFSAM provided 314,550 RBC units to 149 area hospitals, the 4 APHM hospitals included, and performed 460,720 ABO typing tests. The EFSAM is fully automated (Qwalys Diagast and Innova OCD or Wadiana Grifols) and computerized.

Over the study period, the APHM performed transfusion in 10,000 patients using RBC units provided by the EFSAM via 4 intrahospital blood banks. Stringent requirements have been implemented to ensure accurate patient identification. At admission, the APHM normally requires presentation of both the national health insurance and personal identity (ID) cards. During the study period, both cards were obtained in 84% cases, but the ID card alone was checked either during hospitalization in 10% or not at all in 6%. The EFSAM maintains a centralized database of ABO types issued to all 149 area hospitals.

As an added safeguard for patients requiring transfusion, the APHM requires that a control ABO typing test be performed at each hospital admission even if a record exists in the