較老紅血球濃厚液在低體重兒之使用

Use of older red blood cells in low birth weight infants

陳中明

Chen CM

摘要

非常低體重兒經常需要輸注多次紅血球，因此會暴露於很多位捐血者，增加了發生輸血副作用的可能性，特別是與輸血相關的感染性疾病。我們假設輸注較老紅血球濃厚液不會改變血液的酸鹼值和電解質，並且可以降低捐血者暴露率。本研究樣本包括未曾輸過血以及其他可能需要多次輸血的低體重兒。血液保存在附有一空衛星袋的輸血袋內，故一單位紅血球濃厚液在 35 天內可以分兩次使用。我們在輸血前及輸血後的 1~2 小時測量嬰兒的動脈氣體分析、血色素、血漿鈉、鉀及鈣濃度.總共有七位嬰兒（平均±標準誤，出生體重 1186±103 公克，壞孕週數 29.6±0.7 週,年齡 19.4±4.2 天）接受 18 次紅血球濃厚液（眾數（範圍）8 天（1~27））輸血。結果：平均血紅素和鈣濃度在輸血後呈有意義地增加，而酸鹼值、鈉及鉀濃度則沒有差別。輸血後無副作用發生，而且生命徵象也沒有改變。結論：早產兒使用較老紅血球濃厚液是安全的，而且可以降低暴露很多捐血者的機率。

Abstract

Very low birth weight infants, particularly those of less thon 30 weeks' gestation, usually require multiple red blood cell transfusions. Exposure to blood from multiple donors increases the potential for adverse effects, particularly transfusion-associated infections. In this study we hypothesized that using older packed red blood cell (PRBC) transfusions would not significantly alter acid base and serum electrolytes, but would decrease exposure to blood from mulitiple donors. The blood was preserved in citrate phosphate dextrose adenine (CPDA) solution and provided as a main unit with one empty satellite bag so that two separate transfusions can be given before the expiry date 35 day later. The infants' arterial blood gas, hemoglobin, plasma sodium, potassium, and calcium were measured just before and 1-2 hours ofter each transfusion. Seven infants (mean±SE, birth weight 1186±103 gm, gestational age 29.6±0.7 weeks) received 18 transfusions of 15 Ml/kg of PRBC over 3 hours. The median (range) age of the PRBC transfused was 8 days (1-27 days). Following transfusion, there was a significant increase in hemoglobin (10.5±0.3 to 13.3±0.2 gm/dL) and calcium concentrations (2.20±0.08 to 2.34±0.06 mmol/L). Acid base, plasma sodium, and potassium concentrations were not significantly different. Vital signs

remained stable during the transfusions. We conclude that CPDA preserved older PRBC may be safe for use in premature infants and they can be used to decrease donor exposure risk for infants requiring multiple blood transfusions