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BACKGROUND AND OBJECTIVES: Cord blood (CB) progenitor cells are an alternative source of haematopoietic stem cells for bone marrow reconstitution. The critical importance of cell dose in the clinical outcome has motivated the need to develop techniques aimed at reducing cell losses and increasing reproducibility. This aim of this study was to evaluate an automated CB washing protocol of thawed cord blood units using the Sepax device.

MATERIALS AND METHODS: After an initial 1:1 dilution using a dextran/albumin-containing buffer, the cells were washed in order to obtain a final product ready for transplantation. The automatic method was compared with the conventional manual washing procedure. Blood samples were taken after thawing and after washing. The processing time, viability and mean recovery of nucleated cells (TNC) and progenitors were determined.

RESULTS: The automatic procedure resulted in a median recovery of 93% CD34+ cells and 89% TNC; no significant differences were observed between methods. In addition, median viability, as assessed by annexin V and 7-aminoactinomycin D (7-AAD), was 98% and 94%, respectively, within CD34+ cells.

CONCLUSIONS: The automatic washing method described is as effective as the manual method in terms of viability and progenitor cells recovery, but faster and easier for the operators to perform. Overall, our data suggest that the automatic method is safe and suitable for the routine washing of thawed CB grafts in the clinic.

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