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Cord blood stem cells banking and clinical use

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Background and Aim: Umbilical cord blood offers an easy access to hematopoietic stem cells (SC). Several cryopreservation banks, trying to benefit from this discovery, emerged with aggressive and obscure marketing strategies, exploiting the feeling of parental guilt.

This work aims to guide physicians in clarifying parents' doubts about SC donation and banking.

Method: Literature search in the Pubmed database with the terms: "Stem Cells", "Cord blood". Review of national and international recommendations.

Results: The only validated application of cord blood stem cells (CBSC) is the allogeneic transplant for the treatment of hematologic malignancies. Medical applications of mesenchymal SC, from the cord and placenta, are still experimental.

In Portugal there is a public bank working with an international database for allogeneic use. There are also over 8 private banks that facilitate SC collection by the price of 995€ to 2.400€. Units are reserved for family use, favoring autologous transplants and the unit's viability is only determined when required for use.

The probability of having a disease in childhood potentially treatable with transplantation is 1:15.000. Autologous use of stored units in children is 4:1.000.000. The probability of using a sample of the public bank is 100 times that of the private bank.

Several countries recognize that private conservation for autologous use is useless. Italy, Spain and France banned the existence of private banks.

Conclusions: Caution is required towards promises of unreasonable applications. SC transplantation is currently limited to certain hematological diseases and the probability that a child benefit from an autologous transplant is extremely low.

It's not recommended the storage of CBSC as "biological insurance" against future diseases. Blood stored will most likely be used by the brothers of donors than by the donors themselves. If the child is born in a hospital that works with a public bank, donation should be encouraged.