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Correspondence

Autologous cord blood transplantation. A procedure with potential beyond bone marrow replacement?

Ferreira and collaborators[1] recently reported the first successful use of autologous cord blood transplantation as part of cancer therapy. Their report proves a principle. At the same time it raises many more questions than it provides answers. In their article they brought up the issue of cost-benefit for 'insurance storage' of cord blood for protection of the donors and the ethical questions this would entail.

As stated by Ferreira, there are presently no data that can or cannot justify 'insurance storage'. In view of existing pressures for commercialization, we find it paramount that such a study be undertaken. Besides cost-benefit assessments and ethical issues it should address questions relating to technical issues of collection on a broad basis and storage over long periods of time, logistic issues, legal issues of proprietary rights and competition between allo- and autologous banking. Cost-benefit estimates should include traditional indications for autologous hemopoietic stem cell transplants, as well as the possibility of using cord blood for adoptive therapy of infections, autoimmune diseases[2] or for gene therapy.[3] In addition, cord blood hemopoietic stem cells might benefit late in life to counter the normal age-related decline in cellular immune capacity. Animal experiments at least indicate such a possibility.[4] Lastly, cord blood harbors stem cells for other organs or tissues besides the hemopoietic system.

The ethical issues of 'insurance storage' as raised by Ferreira are complex. We accept the traditional convention about non-commercial handling of organs donated from a person to a patient.[5,6] However, we feel that the right to one's own body should extend to the new-born. If stored as the child's property, there need not be any trading in transfer of organs, only a service function of storage to be handled by the public or by a private company paid by the parents. We accept a potential conflict that 'insurance storage' could deprive the public health system of stem cells needed for allotransplantations. There are solutions: other sources of stem cells and the problem might disappear if suitable legislation were enacted and *ex vivo* expansion of progenitors were proven possible as indeed seems to be the case.[7] The initial reports underline the need to address these issues.

Cord blood banking for autologous use has become reality; its place remains to be defined. The points discussed above demonstrate that the verdict on 'insurance storage' depends on a number of factors presently requiring a comprehensive and independent evaluation. The scientific and medical community faces the challenge of finding answers. These should be based on scientific facts and not emotions, and should include all the aspects mentioned above.

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Response

Drs Ebbersen, Gratwohl, Hows and ten Have's thoughtful and insightful comments reinforce what we suggested in our report, namely that we have to address the ethical issues posed by the fortuitous opportunity we had of carrying out an autologous cord blood transplant – the child has by now been in continuous complete remission for 2 years and 2 months.

We agree that the cord blood stem cells involved belong to the child. This is also the opinion of Sugarman *et al*[1]