

ICMR to commercialise its patented technology to isolate VSELs from bone marrow, cord blood

Ramesh Shankar, Mumbai

Monday, June 27, 2011, 08:00 Hrs [IST]

The Indian Council of Medical Research (ICMR) will soon commercialise its newly developed patent protected technology in which it has found a simple method to isolate Very Small Embryonic-Like stem cells (VSELs) from bone marrow and cord blood without the use of sophisticated and expensive infrastructure.

Senior ICMR officials said that at present, Adult Stem Cells (ASCs) isolated from cord blood are cryopreserved and ASCs isolated from bone marrow are used for BMT or autologous stem cell therapy.

But VSELs have much more potential than the ASCs, since they are embryonic in nature. They are pluripotent as compared to multipotent nature of ASCs. Thus if they are also isolated and either cryopreserved along with cord blood ASCs or used during autologous stem cell therapy - the patient benefit will increase several folds, officials said.

VSELs are pluripotent stem cells that have been recently shown, to be present in various adult body tissues along with adult stem cells. Being pluripotent, these cells have higher regeneration potential. Currently during cord blood banking or autologous stem cell therapy using bone marrow isolated cells, these VSELs cells usually get discarded during processing because of their very small size.

It is being speculated that whatever little effect is observed during autologous stem cell therapy, is because of these VSELs, rather than the process of transdifferentiation of adult stem cells. Emerging data suggests that injecting these 'autologous' 'pluripotent' stem cells during autologous stem cell therapy greatly improves treatment outcome. Thus, it is important to modify the existing methods so that the public benefits maximum from autologous stem cell applications.

The method described is simple with minimum manipulations and can be used in ordinary pathology labs. Incorporation of this method will greatly improve the regenerative potential of cord blood stem cells banked for future use and also patients benefit more, if these autologous pluripotent stem cells are injected back along with mononuclear cells isolated by Ficoll-Hypaque during autologous stem cell therapy.

Officials said that the salient features of the technology are: it is a patent protected technology; the method to isolate VSELs is based on differential centrifugation; it can be easily carried out in various labs where cord blood is processed or bone marrow is

processed for autologous stem cell therapy; it does not require sophisticated instruments like Flow Cytometer to sort the VSELs; and it is easy, user-friendly, quick and inexpensive and can be carried out within two hours.

To commercialise this newly developed technology, the ICMR has invited potential licensees or companies interested in commercializing this product.