

The Cord That Sells

by Noemie Bisserbe

Cord blood banks are on the rise. But does the therapy work?

DR KANWAL GUJRAL'S SCHEDULE HAS JUST GOT busier. In addition to the multitude of medical representatives coming to her office at Sir Ganga Ram Hospital's obstetric department in New Delhi, she now has to make time for a new group of salesmen — cord blood banking counsellors.

These people urge parents-to-be to 'bank' their newborn's umbilical cord blood, which is rich in stem cells and can in the future insure their child against many ailments. But what they don't highlight is that the efficacy of stem cell therapy has not been proven yet. And that it costs — about Rs 75,000 for 21 years; or more. "We don't really support the investment," Dr Gujral clarifies. "If there are some blood-related diseases in the family, we may advise patients in

an elective way. Other than that, the chances of it being useful at all are less than 1 per cent."

The counsellors, however, are more persuasive and a growing number of people are opting to pay to preserve their baby's blood. About 16,000 cord blood units are stored every year, according to Ludhiana-based Stem Cell Global Foundation. Market research firm Frost & Sullivan estimates that the industry, valued today at Rs 250 crore, is growing 14-15 per cent per year. Joseph Manoj Victor, healthcare industry analyst at the firm predicts "an explosive growth".

There are at least six major companies in this field in India — Reliance Life Sciences, Cryo-Save, Cryobanks International India (a joint venture between US-based Cryobanks International and Indian RJ Corp), Kolkata-based Cordlife Sciences India, Chennai-based LifeCell (in technical collaboration with Cryo-Cell International) and Hyderabad-based Cord Care.

Sell And Mis-sell

Cord blood companies promise that preserving cord blood can offer cure for some types of leukaemia, blood disorder thalassemia, immuno deficiencies, osteoporosis and many other diseases. But the claims are speculative.

Stem cell therapy is at a nascent stage and is,

HOW CORD BLOOD STEM CELLS ARE COLLECTED

Using umbilical cord blood to harvest stem cells is the newest trend in regenerative medicine

The remaining cord blood cells are re-bagged and stored in a liquid nitrogen storage bank at -190 degree Celsius in the blood bank's storage facility



A cord blood bank collects the sealed bag. The blood is analysed and the red blood cells that are not needed for preservation are separated



A baby feeds through the umbilical cord when in the womb. When the baby is born, the cord is still attached to its body. The cord is cut and clamped



A doctor or a midwife draws blood from the clamped umbilical cord into a special collection bag



in fact, banned in many countries as its veracity is yet to be proven (see 'A Shot In The Dark', *BW*, 14 June). There is little understanding among the public, the medical community and even scientists on what stem cells can really do.

While stem cell-based therapy is at an experimental stage, cord blood transplants have been performed for over two decades to treat leukaemia and other blood-related diseases. So storing the umbilical cord blood could be of use if the baby later develops a blood-related disease. But the incidence of such diseases is relatively low.

The problem is that the more likely the incidence of such diseases, the less likely it is that cord blood treatment will work. "If the disease is genetic, there will be something wrong with the umbilical cord blood in the first place," explains Dr Rakesh Ojha, senior consultant in medical oncology at Fortis Hospital in Noida. "Patients who store umbilical cord blood because of family history are misled."

Moreover, even if the disease is not genetic, there are alternative treatments available; some even considered more effective. Peripheral blood stem cell transplantation is one such procedure which, because of its efficiency, has gained currency in the US and Europe. Moreover, bone marrow transplants, which have been performed for nearly three decades, though more invasive, are richer in stem cells. "Umbilical cord blood [treatment] can usually not be performed on adults, as it contains very few stem cells," says Dr Ojha.

Cord blood banks disagree. "We now know how to expand stem cells without affecting their quality," says Arnoud van Tudler, CEO of Cryo-Save, Europe's largest cord blood bank based in the Netherlands, which started operations in India about 18 months ago. But the procedure is complicated and still in its incipient stages.

Another benefit that cord blood banks highlight is the use of cord blood for siblings. But even between siblings, a chance of a match is only 1:4. Moreover, private cord blood banks do not do an HLA (human leukocyte antigens; important for immunity) typing before storing the cord blood. "This is all a big joke," says medical oncologist, Dr Suresh H. Advani, head of the department of medical oncology at Jaslok Hospital and Research Centre, and senior consultant at SL Raheja Hospital, both in Mumbai.

Hoping For A Breakthrough

However, even those aware of stem cell treatment's unproven record go ahead in the hope that the therapy will progress in the future. Says Meghnath Roy Chowdhury, managing director of Cordlife Sciences India: "Science is progressing fast and the scope of diseases that stem cell

INCREASING POPULARITY

Across the world, cord blood stem cell banks have gained momentum even though the treatment's efficacy is unproven

	Cord blood units collected		Total collected	Transplants performed
	Public banks	Private banks		
US	192,207	780,360	972,567	3,845
Spain	13,421	40,263	53,684	143
Japan	19,888	27,465	47,353	453
UK	18,032	26,146	44,178	2,583
France	3,732	6,930	10,662	5,218

As of 2008

Source: Industry experts

therapies could potentially cure is increasing."

True, to an extent. In the future, stem cells could potentially help treat many diseases that are incurable today, such as neurodegenerative diseases and diabetes. But many adult tissues, such as bone marrow, also have stem cells.

Moreover, those in favour of storing cord blood — parents as well as companies — are betting on the fact that new autologous therapies (transplants in which the patient's own cells are used) will be available in the future. However, most of the research going on is focused on allogeneic therapies (where a donor cell culture is used). The reason is commercial — allogeneic therapies are far more scalable as a business for life sciences companies. By tackling immunology issues, companies could create allogeneic products that could be patented and bought off the shelf, much like any other drug.

But sure of their strategy, cord blood companies have gone a step ahead and set up public banks, which store samples for use by public. C.V. Nerikar, CEO of Gurgaon-based Cryobanks International India, which has collected some 5,000 units through its public bank, believes the real opportunity lies in public banks going global. "There is shortage in the US and in Europe." Navi Mumbai-based Reliance Life Sciences, which also runs a private bank, has collected several thousand cord blood units from hospitals for its public bank, says the company's president, K.V. Subramaniam. But to go global, the public banks will have to gain scale. To have a reasonable chance of finding a match, the public bank should count at least 20,000 samples. Given that around 70,000 babies are born every day in India, this may be possible.

Meanwhile, in the absence of greater clarity on what umbilical cord stem cell therapy can or cannot do, a large number of parents continue to bank their baby's cord blood stem cells in the hope that if needed, it will come in handy.

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