

## Cord blood infusion may have some benefits in cerebral palsy

By *Elvira Manzano*

Obstetricians should encourage parents to bank their babies' umbilical cord blood (UCB) whenever feasible in light of studies that show UCB infusions improved neurologic function in children with cerebral palsy.

"Stem cells from cord blood offer exciting promise in regenerative medicine, including cerebral palsy," said Dr. Keith Goh, consultant neurosurgeon, Mount Elizabeth Hospital, Singapore. "We should start to push for collection of cord blood shortly after delivery as it poses hardly any risk to the mother and the baby."

Cerebral palsy is a disorder of movement, muscle tone or posture that is caused by brain damage, most often before birth. There is no cure, said Goh. The goal of treatment is to help children optimize their motor and cognitive potential.

Chloe Levine from Denver, Colorado, US, was one of the first to undergo an experimental stem cell infusion from her own stored cord blood at age two after a diagnosis of cerebral palsy. Now, she can play and ride a bicycle and has started school.

Stories like Chloe's have prompted further research on the potential use of stem cell therapy for cerebral palsy. Goh noted two recent studies which showed that cord blood infusion have some benefits.

The first study, although limited to 20 patients with cerebral palsy, showed that autologous cord blood infusion was safe and resulted in partial improvements in neurological functions in 25 percent of these patients. Researchers attributed this to the migration of stem cells into the brain and the ensuing cellular and neurotrophic effects. The improvement was more pronounced in diplegics and hemiplegics rather than in quadriplegics. [J Transl Med 2012;10:58; doi: 10.1186/1479-5876-10-58]

A recent randomized controlled trial conducted in Korea, involving 96 children with cerebral palsy, also showed that allogeneic cord blood transfusion plus recombinant human erythropoietin (rhEPO) improved the children's motor and cognitive performance at 6 months. An effect on daily living was observed 3 months post-treatment, with marked improvement in social cognition score. There were no serious adverse events observed. [Stem Cells 2013; 31:581-591]

"The Korean study showed we can use allogenic cord blood to treat cerebral palsy... it doesn't have to be autologous," said Goh. Research continues on the use of cord blood not only for cerebral palsy, but for hypoxic-ischemic brain injury, spinal cord injury and autism, among other diseases. "This exciting development makes cord blood banking even more promising."