Cord blood donation

Advances in cell culture led to the first umbilical cord blood banks 25 years ago, but now the NHS only accepts donations at six hospitals. George Winter explores the practical and ethical difficulties

In the late 1970s, while working in a hospital virus lab, I once took receipt of a donated human placenta and umbilical cord. It was to enable me to harvest cells capable of supporting the growth of viruses. Today, cell culture has almost vanished from routine virus diagnostic labs, but new applications have been found for the umbilical cord. For example, in 1988 the first successful cord-cell transplant to a sibling with Fanconi's anemia took place. This, in turn, led to the establishment in 1992 of the first public and private cord blood (CB) banks (Gunning, 2005).

In February 2017, Elspeth Fuller (2017) launched a UK-wide petition to give mothers a chance to donate stem cells by giving away umbilical cords after childbirth. According to the NHS Cord Blood Bank (2017) website, CB is enriched with stem cells that are useful for treating malignancies such as acute lymphoblastic leukaemia; bone marrow failure; haemaglobinopathies; immunodeficiencies; and metabolic disorders.

The Office for National Statistics (ONS) (2017) states that there were 695,233 live births in England and Wales in 2014. Clearly, there is a vast CB reserve that could be tapped, yet its potential is not being realised. For instance, at present in the UK, the NHS Cord Blood Bank accepts donations at six hospitals in and around London, and the charity Anthony Nolan (2017) runs a public cord bank at four hospitals in London, Manchester and Leicester.

At first glance, one might reasonably expect a wider regional spread of CB-harvesting facilities throughout the UK than a mere 10 hospitals, most in London. But such an expectation fails to take full account of the facts. For example, Communications Manager for NHS National Services Scotland Kirstin C Thomson (2017) provided a statement on behalf of the Scottish National Blood Transfusion Service (SNBTS) explaining that the SNBTS once had a CB banking facility. It was closed in 2015, however, because it was no longer cost-effective to run it 'due to the high cost of collection and processing compared to the small number of cords which met the increasingly stringent international criteria required for selection to support a patient during their haematopoietic stem cell transplant.' In addition, during the decade-long existence of the Scottish Cord Blood Bank there were no requests for a unit for clinical transplantation. According to the SNBTS statement, the relatively few CB banking facilities in the UK can be attributed to 'the high cost of maintaining specially trained clinical staff to process the cord blood; and the need to prioritise donations from people with rarer HLA types and ethnically diverse backgrounds where patients are often unlikely to find a suitable match.'

Dr Cristina Navarette, Director of the British Bone Marrow Register and the NHS Cord Blood Bank (2017) notes that it is the only internationally credited public bank in the UK; has banked around 10,000 units; has issued over 160 units to patients worldwide; and 'more than 40% of the banked units are from ethnic minorities thus increasing the genetic diversity of the bank.'

Whereas the NHS Cord Blood Bank is a public facility, there are also private banks around the world. While both the Royal College of Midwives and the Royal College of Obstetricians and Gynaecologists favour 'directed and altruistic CB collection for public banking in the UK', they also state 'that there is insufficient evidence to recommend routine private collection and storage of CB' (Pawson, 2014). This public/private aspect is considered in greater detail by Brown and Williams (2015), who contrast public banking—operating in a 'gift economy', where commonly held assets are available to anyone for treatment—with private banking, evoking 'the sphere of personal property … in which assets are withdrawn or diverted from circulation and availability.'

I wish Elspeth Fuller well with her petition which, at the time of writing, has attracted over 18 000 signatures. If it is to succeed, at least one requirement will be to ensure increased government funding for provision of appropriately trained staff to process the CB. **BJM**

George F Winter
Freelance writer; Fellow of the Institute of Biomedical Science

Anthony Nolan (2017) Donate your umbilical cord blood. www.anthonynolan.org/8-ways-you-could-save-life/donate-your-umbilical-cord-blood (accessed 27 March 2017)

Brown N, Williams R (2015) Cord blood banking – bio-objects on the borderlands between community and immunity. *Life Sci Soc Policy* **11**: 11 doi: 10.1186/s40504-015-0029-8

Fuller E (2017) Give every mother the chance to save people like Ruby with cord blood donation. www.change.org/p/jeremy-hunt-give-every-mother-the-chance-to-save-people-like-ruby-with-cord-blood-donation (accessed 27 March 2017)

Gunning J (2005) Umbilical cord cell banking – implications for the future. *Toxicol Appl Pharmacol* **207**: S538–43

NHS Cord Blood Bank (2017). www.nhsbt.nhs.uk/cordblood/cordblood/uses/ (accessed 27 March 2017)

Office for National Statistics (2017). www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/livebirths/bulletins/birthsummarytablesenglandandwales/2015-07-15 (accessed 27 March 2017)

Pawson R (2014) Banking on Cord Blood. www.rcm.org.uk/news-views-and-analysis/analysis/banking-on-cord-blood (accessed 27 March 2017)

Thomson KC (2017). Personal communication.