COMET study- Characterisation Of Milk after prETerm birth

Research overview

Approximately 9% of babies are born preterm in Australia each year. Preterm babies are at high risk of acquiring bacterial bloodstream infections, but the causes are not well understood. The immune protection provided by breast milk is especially important in the first months of life when the newborn's immune system is developing. Previous studies suggested that infants receiving breast milk may have fewer infections, but little was known about the levels of immune factors in breast milk of mothers who delivered preterm. The COMET study was designed to test this idea.

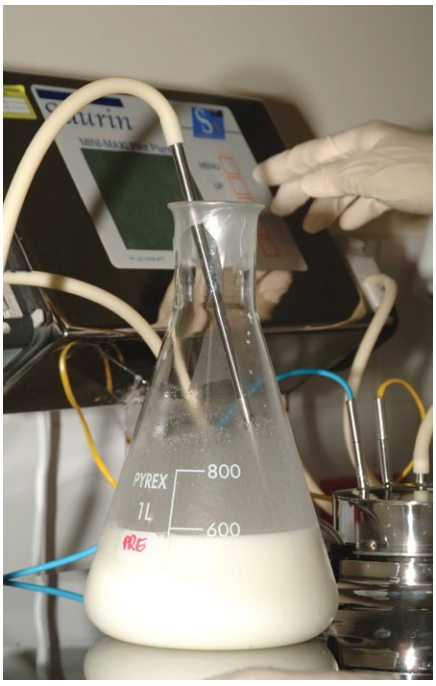
Research highlights

Breast milk samples were collected from 60 mothers of infants born preterm or term infants. The breast milk was tested for the number and type of white blood cells, as well as the concentrations of proteins with antibacterial and immune functions. The effects of preterm birth were compared to the milk levels of protective factors.

Interestingly, we found higher amounts of antibacterial proteins in the milk of the most immature infants' mothers (<28 weeks gestation), in colostrum (the first milk), in first time mothers' milk and when there were only small amounts of milk produced. The number of white blood cells in the milk were similar in preterm and term mothers. Therefore, we could not detect a deficiency of the protective factors in preterm breast milk. Ongoing and future work will be focused on boosting the immune properties of the small volumes of breast milk that preterm infants can tolerate with additional to help protect these vulnerable infants against infections.

Research achievements

The data from the COMET study were analysed as part of Dr Trend's PhD thesis, which passed in April 2015. This work was presented to the WIRF Rising Stars Symposium by Dr Trend in 2014. A manuscript describing the cells in milk from the COMET study was accepted for publication in PLoS ONE in August 2015, and we anticipate publication of a second manuscript on the proteins measured in the COMET study later this year.



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