

Differences between donated and own mother's milk impact the intestinal microbiota

Valencia, Nov 15th (EFE).- A study by the Neonatal Research Group of the Health Research Institute La Fe has observed that the composition of donated human milk differs from newborn's own mother's milk and has an impact on the phenotype of the newborn and its microbiota.

Researchers have studied the metabolic footprint of both milks, their effect on the interaction with the intestinal microbiota and its influence on the developing baby's metabolism and the results have been published in the Clinical Nutrition journal, as sources from this group report.

The project aims to analyse the impact of the type of feeding in preterm infants, studying the metabolomic profile of donated and own mother's milk, its interaction with the intestinal microbiota and its effect on their metabolism.

The research developed by the Neonatal Research Group consisted in an observational study in a population of preterm infants fed exclusively with one type of milk or the other.

Untargeted metabolomics analysis were performed in urine and milk using liquid chromatography coupled to mass spectrometry, as well as the profile of the microbiota present in preterm infants' faeces by massive sequencing, to know the metabolic response and the composition of microbial populations present.

With the help of metabolomics, lipidomics and microbiota, the team has been able to characterize the impact of nutrition during the early stages of preterm infants' life.

The results help to understand the origin of the observed changes, thus generating new hypotheses. Firstly, that the steroid hormones present in milk have a significant influence on the activity of the synthesis of steroid hormones pathway in this population and, secondly, that the metabolism of pyrimidines could be modulated by the activity of the intestinal microbiota.

However, the short- and long-term implications of the observed changes need to be evaluated in further studies.

These results could have practical relevance for the improvement of the preterm infant's feeding through the modification of the protocols of collection, fortification, processing and conservation of donated breast milk.

In the study, led by the Neonatal Research Group, also participated the Leitat technology center, the Analytical Unit, the Neonatology Service, the Human Milk Bank of the Hospital La Fe and the Institute of Agrochemistry and Food Technology (IATA-CSIC).

The work is part of the activity of the Neonatal Research Group of the Health Research Institute La Fe in the European NUTRISHIELD project on personalized nutrition for young people and lactating mothers.

Health Research Institute La Fe is the only Spanish participant in the NUTRISHIELD consortium, which aims to reduce diet-related health disorders through the creation of a platform for personalized nutrition. EFE