Breastmilk Sugar Helps Prevent Group B Strep Infection in Babies

By Ruth Kava — August 30, 2016

Although the term “sugar” has bad connotations, having been linked to everything from dental cavities to obesity, not all sugars are alike. Actually, the term sugar is really a broad term for an entire class of chemical compounds. And some of these, according to new research [2], published in the journal *Clinical and Translational Immunology*, can actually help babies fight off serious illnesses caused by Group B Streptococcus bacteria (GBS).

Dr. Nicholas J. Andreas from Imperial College, London and colleagues investigated the effects of a type of sugar — oligosaccharides — found in the breast milk of many women, on the likelihood that their babies avoided diseases caused by GBS. GBS is the leading cause of infection in the first 3 months of life in both the UK and US; it is also prevalent in sub-Saharan Africa. It is a leading cause of meningitis in neonates.

GBS is a natural presence in the gastrointestinal tract and vagina of one third of women and can be passed to a baby during childbirth. Even if a baby does pick up the bug, if it is fed its mother’s milk, and she produces particular oligosaccharides in her milk, friendly bacteria in the baby’s GI tract can use these sugars for fuel and prevent the growth of GBS.

Whether or not a woman produces certain types of oligosaccharides is controlled or influenced by a genetic system called the Lewis antigen system. Dr. Nicholas and colleagues tested the Lewis and GBS status of 183 women, their breast milk and babies in The Gambia. They found that women who produced the Lewis genes-associated sugars were less likely to have GBS in their GI tracts, as were their babies at birth.

Babies who did pick up GBS at birth were more likely to clear it from their systems by the time they
were 2-3 months old, if their mothers produced a certain oligosaccharide (lacro-n-difucohexaose) in their milk. And in laboratory studies, breast milk containing that sugar was better at killing GBS than was breast milk without it.

Dr. Andreas was quoted [3] as saying, "Although this is early-stage research it demonstrates the complexity of breast milk, and the benefits it may have for the baby. Increasingly, research is suggesting these breast milk sugars (human milk oligosaccharides) may protect against infections in the newborn, such as rotavirus and Group B streptococcus, as well as boosting a child's "friendly" gut bacteria."

Although this is a small study in a group of African women, its potential for benefit is obvious: If this particular sugar is confirmed to be a strong anti-GBS factor, there’s the possibility that it might be added to formula for babies whose mothers don’t provide breast milk, or who do not carry the Lewis antigen system.

Despite their negative associations, not all sugars are “bad”. In fact, one class of sugars, oligosaccharides found in some mothers’ breast milk, might help their babies avoid diseases caused by Group B Streptococcus bacteria.

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