Amniotic fluid and colostrum as potential diets in the critical care of preterm infants - DTU Orbit (02/05/2019)

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Amniotic fluid is the enteral "diet" of the developing fetus, while the first mammary gland secretion, colostrum, is the natural diet of the newborn mammal. Both diets contain nutrients but also growth factors, immune-modulating components, and antibacterial agents that support perinatal organ development, particularly of the gastrointestinal (GI) tract. Birth requires a sudden transition to nutrient uptake via the GI tract and exposure to microorganisms. Ingestion of amniotic fluid before birth and of colostrum just after birth helps to adapt GI functions and provides protection against detrimental immune responses. Experimental studies indicate that these fluids may also have beneficial effects in certain GI disease conditions, particularly those related to immature digestive and immune function. We provide a brief review of the functions and composition of mammalian amniotic fluid and colostrum, and we describe how these fluids may have a therapeutic potential for GI conditions in some pediatric patients, particularly preterm infants. The composition of the two fluids varies widely among different species and the effects are likely highly species specific. Some effects may however be species independent, maybe allowing colostrum from one species (i.e., lactating cows) to be used as the first enteral diet for infants for whom mother's milk is lacking. The use of amniotic fluid and bovine colostrum in the critical care of neonates is still at an experimental stage, but animal studies have shown promising results.

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