Bovine colostrum improves intestinal function following formula-induced gut inflammation in preterm pigs - DTU Orbit (27/12/2018)

**Bovine colostrum improves intestinal function following formula-induced gut inflammation in preterm pigs**

**Background & aims**

Only few hours of formula feeding may induce proinflammatory responses and predispose to necrotizing enterocolitis (NEC) in preterm pigs. We hypothesized that bovine colostrum, rich in bioactive factors, would improve intestinal function in preterm pigs following an initial exposure to formula feeding after some days of total parenteral nutrition (TPN).

**Methods**

After receiving TPN for 2 days, preterm pigs were fed formula (FORM, n = 14), bovine colostrum (COLOS, n = 6), or formula (6 h) followed by bovine colostrum (FCOLOS, n = 14). Intestinal lesions, function, and structure, abundance and location of bacteria, and inflammation markers were investigated.

**Results**

NEC severity and interleukins (IL)-1β and -8 protein concentrations were lower, while villus height, galactose absorption, and brush-border enzyme activities were increased in the distal small intestine in COLOS and FCOLOS pigs, relative to FORM pigs. Intestinal gene expression of serum amyloid A, IL-1β, -6 and -8, and bacterial abundance, correlated positively with NEC severity of the distal small intestine.

**Conclusions**

Bovine colostrum restores intestinal function after initial formula-induced inflammation in preterm pigs. Further studies are required to test if bovine colostrum may also benefit preterm infants during the challenging transition from total parenteral nutrition to enteral nutrition, when human milk is unavailable.

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