

**CHARACTERISTICS OF PEDIATRIC ULCERATIVE COLITIS ASSOCIATED WITH ELEVATED SERUM GAMMA GLUTAMYLTRANSFERASE LEVEL**

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**Background:**

Primary sclerosing cholangitis (PSC) and ulcerative colitis (UC) are chronic interconnected complex immune disorders, with immune dysregulation along the gut-liver axis. Serum gamma glutamyltransferase (GGT) is known to be a biochemical marker for PSC; and evidence indicates that even mild serum GGT elevation >50 U/L within the first few months from UC diagnosis might be suggestive of associated PSC.

**Objective:**

To assess the characteristics of UC among children with elevated gamma glutamyltransferase (GGT)>50U/L with and without formal diagnosis of primary sclerosing cholangitis (PSC).

**Methods:**

Our longitudinal population-based cohort comprised of all children and young adults diagnosed with UC in the Canadian province of Manitoba between 2011 and 2018. Diagnosis of PSC was confirmed based on a combination of hepatic biochemical markers and cholangiographic features. Fisher's exact test with Bonferroni correction was used to examine the relationship between categorical variables.

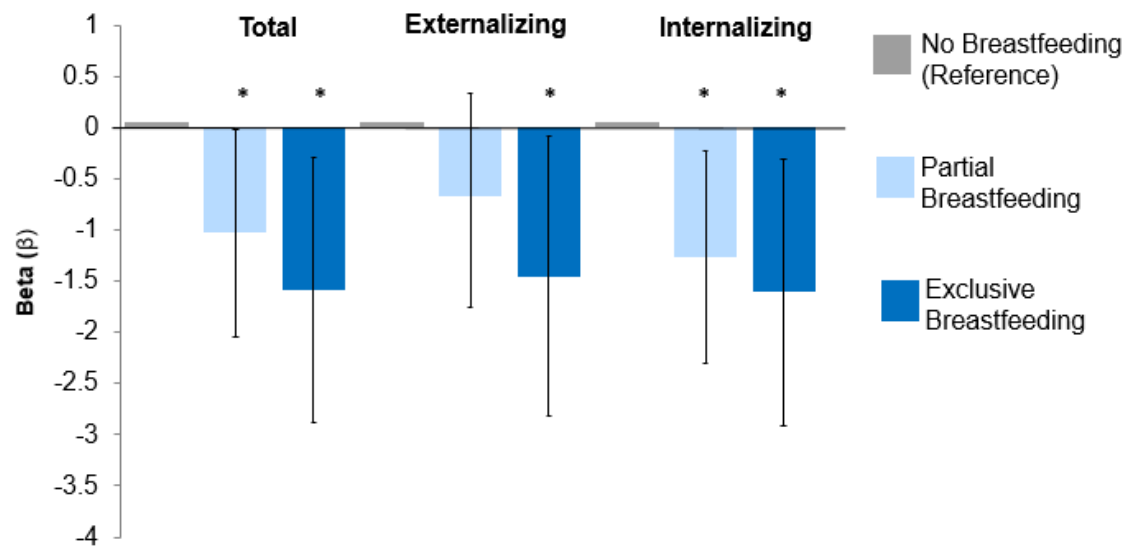
**Results:**

We enrolled 95 children with UC with a median age at diagnosis of 14 years (IQR: 10.4-15.9y) and 1399 person-years follow-up. Among them, 9 children developed PSC-UC with an incidence rate of 6.43 new cases per 1000 person-years. In this cohort, 8 (72.7%) out of 11 children with high baseline GGT, developed PSC-UC in comparison to 1 (1.2%) out of 84 children with normal GGT at baseline ( $p<0.001$ ). All children with high GGT at diagnosis had pancolitis in comparison to 63.9% in the normal GGT group ( $p=0.01$ ). Children with high GGT were more likely to be perinuclear antineutrophil cytoplasmic antibody positive than those with normal GGT (90.9% vs. 52.0%,  $p=0.01$ ).

**Conclusion:**

Our findings indicated that pediatric ulcerative pancolitis patients especially those who are p-ANCA positive with mild elevations of GGT, especially at baseline, might be predisposed to develop PSC. UC patients should get GGT assessed at IBD diagnosis and follow up for early identification of PSC.

**Figure 1: Linear Regression Analyses of Feeding Mode at 6 Months and Child Behaviour Problems at 5 Years**



All models adjusted for: sex, birthweight, maternal education level, maternal race, maternal marital status, birth mode, number of older siblings, maternal smoking during pregnancy, and hours of screen time at 3 years, \*p value of  $\leq 0.05$