CHRD 2022: Abstract & Poster Submission Form

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Presenter Status
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Research Category
○ Basic Science
◉ Clinical
○ Community Health / Policy

Role in the project
☐ Design
☐ Perform Experiments
☑ Analyze Data
☑ Write Abstract
☑ Drafted manuscript

Title
Effect of Trisomy 21 on Long-term Gastrointestinal Outcomes in Duodenal Atresia

Background

Duodenal atresia (DA) is a complete or partial congenital obstruction of the first part of the small bowel. It is the most common site of congenital intestinal obstruction. Approximately one third of children with DA have Trisomy 21 (T21).

Objective

The aim of this study was to determine if T21 affects gastrointestinal outcomes for children with DA.

Methods

Using a large database, we identified all children born with DA between 1991-2017. Cases were divided into two groups: DA with T21 and DA without T21. Ten date-of-birth matched controls for each case were randomly identified. Gastrointestinal, esophageal, ulcerative, obstructive and stomach complaints were assessed. Risk ratios (RR), rate ratios (RaR) and Cox models were constructed. Analyses were performed for all cases versus controls, and for cases with T21 versus cases without T21.

Results

A total of 52 DA cases were identified: 22 had T21 and 30 did not. The control group included 520 children without DA. Compared to controls, DA cases had more esophageal (RR=4.85, p<0.001), ulcerative (RR=2.76, p=0.013), obstructive (RR=100, p<0.001) and stomach (RR=13.75, p<0.001) complaints.
T21 cases were more likely to have esophageal disease (RR=4.08, p=0.002); the rate of esophageal complaint for T21 cases with esophageal disease was increased (RaR=69.8, p<0.001). T21 cases were not more likely to present with obstruction (RR=0.91, p=1), but the T21 cases complained less frequently of obstructive symptoms (RaR=0.57, p=0.003). T21 cases were not more likely to have stomach complaints (RR=2.39, p=0.17), but the frequency with which T21 cases reported stomach disease was increased (RaR=6.20, p<0.001). Cox models supported these observations. Ulcerative disease was not affected by T21.

Conclusion

Regardless of T21 status, DA survivors have more gastrointestinal problems than the general population. Children with DA and T21 have more esophageal and gastric complaints than children with DA without T21 and present less frequently with obstructive symptoms.

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DA T21 TABLE 1.pdf

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Table 1. Comparison of diseases for duodenal atresia cases with Trisomy 21 versus duodenal atresia cases without Trisomy 21

DISEASE	RISK RATIO			POISSON RATE RATIO			COX HAZARD RATIO			COX RECCURENT HAZARD RATIO		
	Risk ratio	**95% CI**	**p**	**Rate ratio**	**95% CI**	**p**	**HR**	**95% CI**	**p**	**HR**	**95% CI**	**p**
ESOPHAGEAL	4.09	1.52,10.1	0.002	69.8	32.1, 196	<0.001	6.50	2.03, 20.8	0.002	12.7	5.11, 31.5	<0.001
ULCERATIVE	0.818	0.21, 3.07	1	1.38	0.47, 4.06	0.5	0.91	2.24, 3.5	0.9	0.86	0.20, 3.65	0.8
OBSTRUCTIVE	0.909	0.45, 1.84	1	0.57	0.39, 0.82	0.003	0.75	0.29, 1.93	0.6	0.39	0.16, 0.97	0.042
STOMACH	2.386	0.80, 7.16	0.17	6.20	3.32,12.7	<0.001	2.61	0.86, 7.93	0.090	2.29	0.78, 6.79	0.13

HR Hazard ratio; **95% CI** 95% confidence interval; **p** p-value