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Poster presentations: Epidemiology (2014)

P611. Is there an association between inflammatory bowel disease and Parkinson's disease?

Background

The BRAAK theory believes that the aetiology of Parkinson's disease (PD) starts in the bowel with a "slow virus" entering the central nervous system after passing through the intestinal mucosa (Hawkes, 2007). There is already evidence of increased *H. pylori* infections requiring treatment in the 5 years prior to Parkinson's disease being diagnosed (Nielsen, 2012). The LRRK2 gene, associated with Parkinson's disease, has been shown to regulate the transcription factor NFAT1 (nuclear factor of activated T cells 1), which in turn appears to regulate cells in the immune system, including macrophages, dendritic cells and T cells. Higher quantities of NFAT1 activity are seen in the colonic mucosa of Crohn's patients, where the total quantity directly correlates to the severity of the disease (Liu, 2011).

Methods

A cross correlation analysis was performed using the IBD and PD databases at the Luton & Dunstable FT University Hospital. A retrospective analysis was also performed using medical notes and the internal electronic results system to assess these two conditions.

Results

The prevalence of IBD and PD within the UK population is said to be 225/100,000 (UC 150/100,000 + CrD 75/100,000) and 140/100,000, respectively. The L&D catchment area covers 330,000 and so one would have expected approximately 742 IBD and 462 PD patients, respectively. The databases had 2783 IBD patients (median age = 79) and 350 PD patients (median age = 51) listed. Probability analysis would suggest we should expected 1 patient to have concomitant PD and IBD, however, we found 6 subjects with the concomitant conditions. This translates into 0.2% of IBD patients having PD and 1.72% of PD patients having IBD.

ID	PD severity	IBD severity	IBD type	Years with PD	Years with IBD	IBD extent
A	Moderate to severe	Moderate to severe	Ulcerative colitis	7.84	13.9	Total
B	Mild to moderate	Mild to moderate	Ulcerative colitis	11.27	4	Left sided
C	Moderate to severe	Mild to moderate	Crohn's disease	5.52	49	Ileo-colic resection
D	Mild to moderate	Mild to moderate	Ulcerative colitis	7.69	10	Left sided
E	Mild to moderate	Mild to moderate	Ulcerative colitis	5.3	3	Proctitis
F	Moderate to severe	Moderate to severe	Ulcerative colitis	8.36	6.6	Total

Conclusion

The proportion of PD having concomitant IBD is considerably higher than one would expect. This raises possible issues around genetic association, but also lends some credence to theories that PD may owe its origins to the bowel and infective translocation across bowel mucosa. Those patients with more significant IBD appeared to have more severe PD.

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