Evaluation of alpha-synuclein immunohistochemical methods for the detection of Lewy-type synucleinopathy in gastrointestinal biopsies

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Résumé en anglais	The observation showing that Lewy type synucleinopathy (LTS), the pathological hallmark of Parkinson's disease (PD), is found in the gut of almost all PD subjects led to a substantial amount of research to develop a diagnostic procedure in living patients based on endoscopically obtained gastrointestinal biopsies. However, the existing studies have provided conflicting results regarding the sensitivity and specificity of gastrointestinal biopsies for the detection of LTS. We therefore undertook a multi-center staining and blinded judging of a common set of slides from colonic biopsies to determine the optimal protocol for the detection of LTS. Four different immunohistochemical methods, developed in four separate expert laboratories, were evaluated for their sensitivity and specificity to detect enteric LTS. Test sets of formalin-fixed, paraffin-embedded sections from biopsies of 9 PD subjects and 3 controls were stained with the 4 methods and graded by 4 different observers. Four types of staining morphology (granular staining in the lamina propria, perivascular/vascular wall staining in the submucosa, lacy-granular pattern in the submucosa and epithelial cell nuclear staining) were variably observed in the slides stained by the 4 methods. Positive alpha-synuclein staining was observed by all 5 judges in most of the slides from control cases, regardless of the staining methods that were used. Moreover, none of the tested method or staining pattern had a specificity and sensitivity more than 80 % regarding to PD. Overall, our study suggest that the tested methods are not adequate for the prediction of PD using gastrointestinal biopsies. Future studies are warranted to test new immunostaining methods.
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