

PWE-100

## OESOPHAGEAL EPITHELIAL ASIC3 IS ASSOCIATED WITH INCREASE IN SEVERITY OF SYMPTOMS IN PATIENTS WITH GASTRO-OESOPHAGEAL REFLUX DISEASE (GORD)

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**Introduction** Immunoreactive nerves and epithelial markers have been studied in the context of acid induced oesophageal hypersensitivity. Increase in immunoreactive TRPV1 nerves are associated with presence of oesophagitis<sup>1 2</sup> as well as acid exposure time.<sup>3</sup> ASIC3 was identified in epithelium of rat oesophagus and ASIC inhibitor (Amitidine) prevented oesophageal hyperaemic response in rats to CO<sub>2</sub> infusion (mimicking acid).<sup>4</sup> We aim to identify ASIC 3 in human oesophageal epithelium and to determine if it is a suitable biomarker of symptom severity in patients with gastro-oesophageal reflux disease (GORD).

**Methods** 36 oesophageal mucosal biopsy samples from patients (age 19–59 years and 17 females) with or without GORD undergoing gastroscopy were obtained and their clinical symptoms were assessed using visual analogue scale (VAS) adapted from validated questionnaire ReQUEST. The symptoms assessed were; general feeling, acid complaints, upper abdominal complaints, lower abdominal complaints, nausea, sleep disturbances. Samples were paraffin fixed and analysed using immunohistochemistry for PGP 9.5 and ASIC3.

**Results** Epithelial ASIC3 was identified in the mucosal biopsies (14 controls, 18 non-erosive reflux disease, 4 erosive oesophagitis). ASIC3 could be classified based on distribution and morphology into 4 groups; basal layer (stratum basale), stratum spinosum perinuclear, stratum spinosum membrane bound and superficial luminal layer staining. Patients who scored higher on VAS for all 6 symptoms also demonstrated higher expression of all 4 ASIC3 features studied (median 65% (35–87) vs 57% (34–79), p=0.018). In particular, for acid complaints, sleep disturbance and lower GI complaints, this association was more significant (median 64% (46–81) vs 54% (38–69), p=0.002). Nerve fibres as stained by PGP 9.5 in human oesophageal epithelium were absent.

**Conclusion** Presence of specific epithelial ASIC3 features in oesophageal epithelium was associated with increase in severity of common GORD symptoms. Further quantitative studies are required to study correlation of ASIC3 as an objective biomarker of symptom severity.

**Competing interests** None.

**Keywords** ASIC3, gastro-oesophageal reflux disease, Visceral Pain Hypersensitivity (VPH).

**Contributors** Q Aziz and CH Knowles are joint senior authors

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