

Introduction Functional gastrointestinal disorders are common clinical conditions where visceral hypersensitivity has been strongly implicated. It is recognised that genetic factors may be an important factor in visceral sensation and may guide future pharmaceutical targets.¹ One genetic biomarker, Brain Derived Neurotrophic Factor (BDNF) is a neurotrophic factor known to modulate pain, which is linked to a common polymorphism (Val66Met).

The aim of this proof of concept study was to investigate if there is an association between presence of BDNF Val66Met polymorphism and oesophageal pain thresholds to electrical stimulation.

Methods Healthy volunteers (n=43, 22 males, 21 Females, mean age 31.6 years) were recruited and completed health screening questionnaires including the Hospital Anxiety and Depression Scale (HADS) before providing a saliva specimen for genotyping. All volunteers were tested for sensory (ST) and pain (PT) thresholds in the proximal (PO) and distal oesophagus (DO) using electrical stimuli (ES) to a swallowed intraluminal catheter with 2 pairs of bipolar electrodes, positioned 5 and 20 cm below the upper oesophageal sphincter. As a control, ST and PT were also tested using ES on the hand and on the foot.

Results 29/43 (67%) volunteers had BDNF Val/Val genotype. 14/43 (33%) had BDNF polymorphism (non-Val/Val). Mean ST and PT for oesophagus, hand and foot are shown in table 1. When BDNF status was considered, non-Val/Val subjects had consistently lower thresholds in the oesophagus, with significantly reduced values in the lowest quartile for PO PT (mean \pm SEM; 21.8 ± 3.8 vs 35.7 ± 1.61 mA) $p=0.02$, but not for DO, Hand or Foot.

Mean HADS for Anxiety (4.33) and Depression (1.43) were similar for both BDNF groups.

Conclusion Our study shows proof of concept evidence that BDNF polymorphism may be an important genetic factor in visceral hyperalgesia. A larger scale study combined with monitoring and control of psychosocial factors is thus merited.

Competing interests None.

Keywords Visceral Pain, Functional Gastrointestinal disorders, Brain Derived Neurotrophic Factor.

REFERENCE

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EARLY EVIDENCE IMPLICATING THE BRAIN DERIVED NEUROTROPHIC FACTOR (BDNF) VAL66MET POLYMORPHISM IN THE PATHOGENESIS OF OESOPHAGEAL VISCERAL SENSITIVITY

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Table 1 PWE-090 Mean sensory and pain thresholds for oesophagus, hand and foot

Thresholds (mA)	PO ST	PO PT	DO ST	DO PT	Hand ST	Hand PT	Foot ST	Foot PT
All (n=43)	15.4	50.4	27.0	62.0	2.7	37.3	4.6	49.0
Val/Val (n=29)	16.4	52.4	28.4	65.5	2.7	35.3	4.5	47.6
Non-Val/Val (n=14)	13.4	46.2	24.1	54.7	2.7	41.3	4.7	51.9