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LOWER URINARY TRACT, BOWEL AND SEXUAL DYSFUNCTION IN FRIEDREICH'S ATAXIA

Hypothesis / aims of study

Friedreich's Ataxia (FRDA) is a rare neurodegenerative trinucleotide repeat disorder affecting the cerebellum and spinal cord, and is the commonest cause for hereditary ataxia. Lower urinary tract (LUT) dysfunction has been described in this condition, however is poorly characterised (1,2), and its' relation to the underlying neurological condition is uncertain. The aim of this study was to prospectively evaluate LUT symptoms in a large cohort of patients with FRDA using validated questionnaires, and explore their relation with bowel and sexual dysfunction, and duration and severity of neurological disease.

Study design, materials and methods

Patients with a classical phenotype and confirmed diagnosis of FRDA by genetic analysis being seen at a tertiary centre were prospectively evaluated. Demographic information was obtained, and ataxia severity assessed using Scale for the Assessment and Rating of Ataxia (SARA), Inventory of Non-Ataxic Symptoms (INAS) and Activities of Daily Living (ADL) questionnaire. Trinucleotide GAA repeat sizes were determined by polymerase chain reaction (PCR) (Laboratoire de Neurologie Expérimentale, ULB Brussels). Patients filled in the Urinary Symptom Profile (USP) and SF-Qualiveen questionnaires to evaluate LUT symptoms and quality of life, respectively. The Neurogenic Bowel Dysfunction (NBD) score was used to assess bowel symptoms and Arizona Sexual Experience Scale (ASEX) to evaluate sexual symptoms. Independent *t*-tests and regression analysis were carried out using IBM SPSS Statistics for Windows, version 21.0.

Results

Fifty-nine patients (31 male) were recruited with a mean age of 35 years (sd=13). The mean age of onset of ataxia was 17 years (n=53, sd=12) and mean duration of ataxia symptoms 19 years (n=50, sd=9). Mean size of GAA trinucleotide repeat in the *FXN* gene was 642 repeats (n=50, SD=304). Twenty-four patients were wheelchair-bound. 83% of patients (n=45) reported LUT symptoms, including LUT storage symptoms (n=45) (urgency (89%), urge incontinence (53%), daytime frequency (33%) and nocturia (33%)) and voiding symptoms (n=17 (31%)); 18 patients (63%) reported impairment in LUTS-related quality of life. The presence of LUT symptoms correlated significantly with quality of life measures ($p<0.001$, $R=0.73$). There was a significant correlation between LUT storage symptoms and spasticity scores (INASsp) ($p=0.045$). The presence of voiding symptoms on the USP questionnaire correlated significantly with LUT storage symptoms ($p<0.001$, $R=0.63$) and duration of ataxia ($p=0.014$, $R=0.35$). No gender differences were noted in bladder scores. The mean post-void residual volume was 30 mls (n=2). 64% (n=37) reported bowel symptoms (reduced bowel frequency (86%) and faecal incontinence (16%)), whereas 25% (n=9, 5 females) reported sexual dysfunction. 75% of patients (n=44) who reported LUT storage symptoms also reported bowel dysfunction, and were also more likely to report sexual dysfunction ($p=0.0003$). Patients with bowel symptoms were also more likely to report sexual dysfunction ($p=0.024$). Late-onset of ataxia (onset on or after 25 years of age) was significantly associated with higher LUT storage scores ($p=0.015$, $se=1.4$) and voiding symptoms ($p=0.004$, $se=0.47$) in the USP questionnaire compared to early onset of symptoms. However there were no significant differences in SARA, ADLs, INAS, SF-QoL or ASEX scores.

Interpretation of results

In one of the largest cohorts of patients with FRDA, a high prevalence of LUT symptoms was reported. Using validated questionanires, LUT storage symptoms predominated, and this is likely due to detrusor overactivity (2). Voiding symptoms, likely to be due to detrusor sphincter dyssynergia from spinal cord involvement, was reported less often (2). LUT symptoms correlated with increasing neurological disability, duration of disease, and is more prominent in late-onset ataxia. Surprisingly, there was not correlation with the length of the GAA trinucleotide repeat. Additionally, LUT symptoms correlated with bowel and sexual symptoms. Despite the significant impact on quality of life, only 24% of patients had received treatment at any point.

Concluding message

LUT symptoms are common in FRDA and commonly co-exist with bowel and sexual complaints. Symptoms are under-recognised, and therefore greater awareness is required amongst health care professionals to address these disabling complaints.

References

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Disclosures

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