

INCONTINENCE, BREATHING DISORDERS AND BACK PAIN: AN INSEPARABLE TRIAD?

Hypothesis / aims of study

Recent epidemiological data provide evidence of a relationship between respiratory disorders, incontinence and back pain. For instance back pain is more common amongst women with incontinence and breathing disorders than those without (1). However, causality is difficult to infer. A range of physiological explanations have been proposed that could underlie a causal relationship. Although there is an easily defined common start point in some situations (e.g. comorbidity of incontinence and back pain in association with pregnancy and childbirth), other explanations are also biologically plausible. For instance, recent data highlight the concurrent function of the axial muscles (including pelvic floor, abdominal, paraspinal, and diaphragm muscles) for respiration, continence and trunk control (2). In situations in which the demand for one function is increased, this could lead to a compromise in another. Such competition between the functions of the axial muscles could contribute to comorbidity of this triad of conditions and pre-existing symptoms of one disorder may be associated with increased risk for development of another. The aim of this longitudinal study was to determine whether the presence of one disorder in the triad increases the risk for development of another.

Study design, materials and methods

Self-report data from the Australian Longitudinal Study on Women's Health was used for this analysis. Three age cohorts (younger: 18-23 years, n=14 060; mid-age: 45-50 years, n=13 004; older: 70-75 years, n=10 986) of women were randomly selected from the National Medicare Health Insurance Database in 1996 to participate in a 20-year follow-up study on physical and mental well-being, health behaviours, diagnoses and symptoms, and social factors. Data is collected by postal surveys. Data from the baseline survey in 1996 and the first follow-up survey (mid-age: 1998, older: 1999, younger: 2000) were used in this study. Three age cohorts of women who had developed back pain, incontinence, breathing problems (mid-age and older women only), or allergy (including respiratory symptoms of hayfever and sinusitis: younger women only) in the 12 months prior to second survey were included in separate analyses. Exposures at each survey were classified as present or absent based on reported frequency during the 12 months prior to each survey. Participants who reported having the symptom "rarely", "sometimes" or "often" were defined as having the symptom.

Multivariate associations between the development of back pain, incontinence, breathing problems and the presence or change in the presence of each of the other conditions (e.g. association between the development of incontinence and the presence or change or presence of back pain or breathing disorders) were assessed with logistic regression. Analyses were performed separately for each age cohort using the statistical software SAS (Version 9.1). Multivariate prevalence ratios were estimated in the genmod procedure with the binomial distribution and a log link. The model was derived using forward selection of factors significant at a p-value of 0.05. Other factors considered to have a potential association with these outcomes were included as confounders in initial analyses.

Results

Pre-existing and newly developed back pain, incontinence, respiratory problems, and allergy symptoms increased the risk for the future development of one of the other conditions. Incontinence (prevalence ratio range: 1.26-2.12) and breathing problems (prevalence ratio range: 1.63-2.11) are risk factors for the development of back pain. Furthermore, back pain is a risk factor for the development of incontinence and breathing problems (prevalence ratio range: 1.18-2.44 and 1.53 and 2.62, respectively).

Interpretation of results

This study has identified a significant relationship between back pain, incontinence and respiratory problems; the presence of one disorder is associated with an increased likelihood of development of another condition of the triad. The association is likely to be multifactorial with a range of physiological, as well as psychosocial underpinnings. As recent data highlight physiological changes in control of the axial muscles in each of the disorders in the triad (3), dysfunction of these muscles may contribute to the comorbidity of these conditions.

Concluding message

A patient with incontinence, breathing disorders or back pain may be at risk for development of one of the other related conditions. This can inform clinical evaluation and provide initial guidance for potential development of preventative strategies.

References

1. Aust J Physiother. 2006;52(1):11-6
2. Neurourol Urodyn. 2007;26(3):362-71
3. Neurourol Urodyn. 2007;26(3):377-85

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