



Review

Affective symptoms and the overactive bladder – A systematic review



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ARTICLE INFO

Article history:

Received 29 June 2014

Received in revised form 17 November 2014

Accepted 20 November 2014

Keywords:

Overactive bladder syndrome

Urgency urinary incontinence

Anxiety

Depressive symptoms

Depression

Affective symptoms

ABSTRACT

Background: Overactive bladder syndrome (OAB) is characterised by urgency symptoms, with or without urgency incontinence, usually with frequency and nocturia. Although literature suggest an association between OAB, depression and anxiety, no systematic review has been presented.

Objective: Systematically review the literature on the association of affective conditions with OAB.

Methods: Systematic review according to the PRISMA guidelines. This review is registered in the PROSPERO register (CRD4201400664).

Results: Forty-three articles were included, describing more than 80,000 subjects. Depression and OAB were positively associated in 26 studies, anxiety and OAB in 6 studies. Longitudinal studies reported: a) OAB subjects who developed depression/anxiety or b) depressed/anxious subjects developing OAB, or c) both. The quality of evidence in studies reporting an association between the co-occurrence of OAB and depression was rated level 3 in accordance with the GRADE framework. Evidence reporting on the co-occurrence of anxiety and OAB was rated GRADE level 2. Longitudinal associations between new onset of OAB in depressive subjects was GRADE level 2. Evidence reporting association of OAB with anxiety in longitudinal studies was of GRADE level 1.

Conclusion: To our knowledge, this systematic review is the first to give a comprehensive qualitative overview on the association between OAB and affective symptoms. Many evaluated studies failed to note longitudinal changes and lacked evidence of causality. Still, results revealed an association between OAB and affective symptoms and there is evidence for new onset of OAB in depressive subjects, but further research is necessary to examine the strength of the effect.

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Introduction

Depression and anxiety are classified as affective disorders according to the DSM-IV psychiatric diagnostic criteria [1]. According to a survey of the World Health Organisation, anxiety is globally the most common psychiatric disorder [2]. The lifetime prevalence of

anxiety disorders in the US adult population is around 18% [2]. Depression has a high lifetime prevalence as well, ranging from 2 to 15% [3].

Overactive bladder (OAB) is defined by the International Continence Society (ICS) as a symptom complex of urgency, usually accompanied by frequency (voiding 8 or more times in a 24 hour period) and nocturia (awakening at night to void), with (OAB wet) or without (OAB dry) urinary urgency incontinence (UUI) [4]. Approximately 16–17% of the adult population is affected by OAB: 43% of adult women experience OAB symptoms 'sometimes' and 33% 'often' [5,6]. The health care costs of OAB are high and around 12 billion USD per year [7].

Although high prevalence rate would suspect the opposite, OAB is often underdiagnosed and subsequently undertreated, mainly because of patients' reluctance to seek medical help [8].

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Only 27% of people with OAB were receiving treatment in a large population based survey [6]. One possible reason for not seeking help in OAB may be caused by stigma perception [8]. Another is that people may assume that UI is part of the normal aging process [9]. In addition an inverse relationship between depressive symptoms and healthcare seeking in patients with OAB is reported [10].

A relationship between common affective disorders (e.g. depression and anxiety disorders) and lower urinary tract symptoms (LUTS) has been described as early as 1964 [11]. The importance of mental disorders in the aetiology of urgency incontinence was again emphasized more recently [12,13]. In 2011 the International Consultation on Incontinence-Research Society (ICI-RS) organised a think tank on psychological factors and LUTS [14]. It was noted that not only OAB but also other LUTS may be associated with affective conditions, concluding that 'the possibility of causation and or maintenance of lower urinary tract symptoms through psychological causes needs further research' [14]. At present there has been renewed interest in the matter, reflected by a quadrupling in publications found through PubMed/EMBASE search on the topic since 2000 (searched for anxiety, depression and lower urinary tract symptoms before and after 2000).

Despite this growing interest, the exact nature of the association between bladder symptoms and mental conditions, specifically affective disorders, remains unknown. A systematic review using strict definitions may inform the field regarding the strength of the associations between affective disorders and OAB and may possibly enhance insight in underlying pathophysiological mechanisms and treatment recommendations at the "bladder-brain-axis".

The aim of the current study was to (i) review articles providing evidence on the association of affective conditions with OAB; (ii) to examine the direction and strength of the association; (iii) to gauge the possible influence of method and design factors in terms of occasioning bias or confounding; and (iv) to formulate considerations for future research.

Methods

This systematic review was registered in PROSPERO under number CRD42014006641 [15].

Inclusion and exclusion criteria

A literature search for full length original articles meeting the following inclusion criteria was carried out: a) adults; b) patients with overactive bladder, urinary urgency incontinence (and/or frequency or nocturia); not initiated by surgery, using a questionnaire, voiding diaries or urodynamic evaluation to state symptoms; c) assessment of depressive symptoms and/or anxiety using a validated multi-item scale or a structured diagnostic interview; d) reporting an association between urinary symptoms and depression or anxiety; and e) published in English in a peer-reviewed journal. Reviews, expert opinions, abstracts and comments were excluded.

Literature search

PRISMA guidelines were used concerning preferred reporting items for systematic reviews [16]. The following databases were searched: Medline (PubMed), Embase, Web of Knowledge, Cochrane and PsychInfo. There was no age restriction on the searched articles, and the last search was dated December 31st 2013. The detailed query is listed in the appendix.

These database searches were supplemented by hand searching the reference lists of eligible articles. Two authors (DV and CL) independently examined titles, abstracts and full-text articles. Names of authors, institution and journal of publication were not blinded. One author was a content expert on overactive bladder (DV), the other an expert in the field of affective disorders in somatic conditions (CL). Consensus was obtained in 85% of the manuscripts; the remaining 15% of disagreements were handled by discussion. 1249 abstracts were identified in the database searches, and after removal of duplicates, 925 remained for screening on relevance. In the reference lists an additional 54 abstracts were found. Eventually, 117 full text articles were assessed for eligibility, 74 articles were excluded resulting in a final set of 43 articles (out of 37 studies), which were included in this review. Errata were examined if articles were retracted since publication; there were none. Attempts were made to obtain unpublished results to diminish effects of reporting bias. The flow-chart of the selection process is depicted in Fig. 1.

Data extraction and quality assessment

Two authors performed data extraction and quality assessment independently (DV, urologist and JD, PhD student), using a standard data extraction form. The data extraction form was pilot tested and modified accordingly before further use. Consensus was obtained in 90% of the articles; the remaining 10% of disagreements were solved by discussion. Multiple reports on the same study were collated as one entry of interest. Level of evidence of each article was stated according to the University of Oxford's Centre for Evidence-based Medicine (CEBM) documents [17]. Assessment of risk of bias was performed by using the Cochrane Collaboration's tool for assessing risk of bias [18]. Six domains of bias were taken into account: selection bias, performance bias, detection bias, attrition bias, reporting bias and other bias. The assessment was finished by applying the 'Grading of Recommendations, Assessment, Development, and Evaluation' (GRADE) framework to rate the overall quality of evidence for each reported outcome measurement [19].

Results

Forty-three articles regarding 37 studies were included in the review. Thirty-two articles were about depression, 9 about anxiety (and depression) and two about anxiety only. Diagnosing OAB was carried out according to the ICS definition of OAB in 33 articles. In 10 articles, the ICS definition had not been used. Three of these articles were published before establishment of the ICS definition in 2002 [20–22]. Retrospectively these 10 articles adhered to the ICS definition and were included. Twelve studies used additional instruments, such as voiding diaries or urodynamic studies. A validated measurement of depressive and/or anxiety symptoms was used in all studies (Table A.1). Most articles described cross-sectional ($n = 29$) study designs. The remainder were cohort studies ($n = 10$) and randomised controlled trials ($n = 4$) (Table 1). There was a wide range in mean age (between 29 and 89 years old) and the number of people included per study (35 to 30,000). Overall a little more than 80,000 subjects were included. Most included subjects were women, but for approximately 30,000 men, gender-specific analysis was reported. The eligibility of performing a meta-analysis was examined. Due to the heterogeneity of the included studies and the small number of longitudinal studies, it was not feasible to perform a meaningful meta-analysis. Hence a qualitative synthesis was undertaken.

Overall in most articles all risk of bias domains were assessed as low risk or unclear risk. Also some domains were not applicable for several articles (inherent to study design) (Table 2). "Other bias" was around 47% across articles, such as ascertainment bias [23,24] and sick quitter bias [25–27].

A positive association between depression and OAB was found in the majority of studies ($n = 26$) (Table 3). There was no association of OAB with depression in 9 studies (Table 3). Two studies reported about anxiety and OAB only (not depression); both revealed a positive association. In the longitudinal studies, associations in different directions were present: OAB subjects developing depression/anxiety and/or depressed/anxious people developing OAB, or both (all compared with control subjects).

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