

A STUDY OF CLINICAL DEPRESSION IN PATIENTS SUFFERING FROM URINE INCONTINENCE

Psychiatry

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KEYWORDS

Introduction

Neuropharmacological evidence indicates that some forms of depression are associated with reduced serotonergic function^{1,2} which may influence voiding³. Descending serotonin axons from the brain synapse on visceral afferents, interneurons and preganglionics in the thoracolumbar and sacral spinal cord that participate in voiding. The actions of serotonin are complex and mediated by 13 different receptors. Descending serotonergic input on afferents in the dorsal horn inhibits visceral input, and may explain direct inhibition of bladder activity with filling and pain. However, serotonergic input to sacral interneurons projecting to bladder preganglionics may increase or decrease bladder activity depending on the type of interneurons (glutamate positive versus gamma amino butyric acid negative). Thus, a reduction in serotonin causing a net decrease in inhibition may predispose to unstable contractions. By increasing this monoamine serotonin uptake blockers may inhibit (retention) or activate (urgency) voiding pathways depending on the site. Thus, it is not surprising that serotonin agonists and uptake blockers can inhibit voiding and be useful for the management of urge urinary incontinence⁴. Although retrospective studies suggest an association between incontinence and depression⁵⁻⁸, these reports are difficult to interpret because of selection bias, inadequate controls, few patients and lack of urodynamic evaluation. We have attempted to evaluate and quantify depression in incontinent patients using the Beck Depression Inventory (BDI) to test the hypothesis that urge incontinence is associated with depression. The BDI is among the most respected self-report depression inventories which bypass clinician bias in assessing depression. Each of the 21 BDI items consists of 4 statements that represent increasing intensity of a particular attitude or symptom. Scores of 0 to 3 are assigned to each statement and summed for a total score. The BDI has been used in more than 500 research studies, and has documented construct, concurrent and predictive validity.⁹

Materials and Method

A total of 100 new patients suffering from urine incontinence were enrolled in the study from surgery/urology OPD and hospital inpatients. The group consisted of 62 men and 38 women with a mean age of 58.3 years. All patients were evaluated for depression based on history and mental status examination. A clinical diagnosis of depression was made based on WHO's ICD-10 criterion for depression following which Beck's Depression Inventory scale was administered to quantify depression and aid the diagnosis. Depression was considered a risk factor when the BDI score exceeded 12 and/or a history of depression requiring pharmacotherapy or counselling was obtained. The BDI provides a continuous measure of depression severity with 0 indicates an absence of depression. A BDI score of greater than 12 has a reported sensitivity of 0.79 and specificity of 0.77 compared to a psychiatric diagnosis⁹. Cases were classified as stress, urge or mixed incontinence based on history, physical examination and video urodynamics. Genuine stress urinary incontinence was diagnosed when urine loss occurred with abdominal straining. Urge incontinence was diagnosed when urine loss followed urgency and urodynamic testing demonstrated hyperactive (unstable) detrusor contractions. Patients were diagnosed with urge incontinence based

solely on history and absence of stress urinary incontinence, prolapse and neurological findings on examination. Urge incontinence was also classified as neuropathic or idiopathic depending on whether neurological findings were present or absent.

Results

Of the 100 incontinent patients 35% had stress, 32% had urge incontinence and 33% had mixed incontinence. Overall prevalence of depression in the sample was evaluated to be 35%. Mean BDI was 7.9 for the incontinent group. In addition, a history of depression or a BDI of greater than 12 was noted in 30% of the incontinent patients.

Table 1

Incontinence Type	Number of patients	Percentage	Number of depressed patients	Prevalence of depression
Stress	35	35%	10	28.57%
Mixed	33	33%	11	33%
Urge	32	33%	14	43.75%

A significant increase in depression was noted in the overall incontinent group compared to normal population. Females were found to be more depressed than males. 17 out of 38 incontinent females were found to be suffering from depression which accounts for 44.7%. Although in males only 18 individuals out of 62 were diagnosed as depression ie prevalence of depression in incontinent males was found out to be only 29%. There was evidence of depression in only 29% of patients with stress urinary incontinence compared to 44% of those with urge or 33% in mixed incontinence (fig. 1). Patients with urge incontinence due to neuropathology or obstruction were more likely to have a risk of depression. The diagnosis of depression for the various subgroups of incontinent patients is shown in figure 1. These associations persisted when age and sex adjusted continent and incontinent

cohorts were analyzed using the combination of a history of depression and BDI greater than 12.

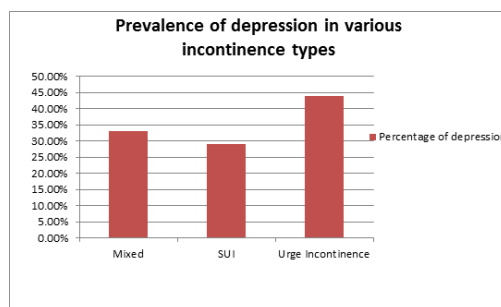


Figure 1: Prevalence of depression and incontinence. Prevalence of depression in patients with urge (44%) and mixed (33%) Incontinence exceeded that for stress incontinent

Discussion

It has been thought that incontinence leads to depression, or that patients with depression, hysteria or anxiety manifest voiding complaints as an emotional response to psycho-pathology⁵⁻⁹. In our study an understanding of the relationship between depression and urge incontinence is supported by an association between the 2 conditions consistent with a common neuropharmacological basis for incontinence and depression. Although neuroendocrine tests have been proposed to measure serotonin activity and responses to selective antagonists, there is no consensus on whether such tests truly evaluate serotonin function. Therefore, it was beyond the scope of this study to assay serotonin function. However, the association between depression and urge incontinence is consistent with the notion that a reduction in serotonin function predisposes to depression and contributes to bladder over activity. One might argue that patients with incontinence are merely more likely to be depressed or undergo psychiatric evaluation. These scenarios are unlikely because untreated patients with stress incontinence were no more likely to be depressed than continent controls, and a significant association existed between depression and urge incontinence whether history or BDI alone was used. Moreover, urge incontinence attributable to a neurological disorder or obstruction is not associated with depression. Recent studies examining BDI scores or symptoms of depression in women before and after surgery for stress urinary incontinence revealed elevated postoperative scores even when incontinence was corrected.^{10,11} Specifically, Rosenzweig et al reported that depression became worse after unsuccessful surgery but was not statistically improved with a successful procedure. Together these findings suggest that incontinence is not the sole reason for an association. The question of whether depression was present before the development of urge incontinence was not addressed in this study but if true would lend even greater support to this association. Anecdotally many patients believed that incontinence began several years after being diagnosed or treated for depression. Interestingly the rate of serotonin synthesis is 52% higher in men than women¹². It is tempting to speculate that bladder overactivity and major unipolar depression are higher in women because of reduced serotonin activity. Ultimately a mechanistic link requires an assay for serotonin in continent and incontinent patients with depression but, unfortunately, a suitable assay for humans has not determined^{12,13}. A neurochemical abnormality underlying incontinence and depression may imply a common genetic defect which could lead to screening, prevention or the development of new pharmacological therapies. In conclusion, these data suggest a strong association between depression and urinary incontinence. This link may be due to altered serotonin function. This study necessitates and paves way for further exploration of the association between these two domains.

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