Prevalence and impact of depression and pain in neurology outpatients

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BACKGROUND

We examined the prevalence and health related quality of life (HRQoL) of depression and/or pain in neurology outpatients.

METHODS

Patients at outpatient clinics completed depression, pain, and HRQoL scales. Group comparisons between those with pain alone, depression alone, both conditions, and neither condition were done.

RESULTS

Overall, pain was present in 2/3 and depression in 1/3 of patients. Pain with depression was present in 25%; 75% of depressed patients had pain. These conditions had significant negative impact on mental and physical health status scores. The odds ratio (OR) for having pain was significantly increased in women (OR 2.0), those with depression (OR 2.4), and those with neuropathy/neuromuscular (OR 3.8) or pain syndromes (OR 4.8). The odds of having depression were increased in those with pain (OR 2.4) and with cognitive (OR 4.8) or cerebrovascular (OR 3.3) diagnoses. Neurologists were more likely to recognise and treat pain than depression.

CONCLUSIONS

Depression and pain are common in newly referred neurology outpatients and have substantial negative effects on patients’ physical and mental health. Pain is more likely than depression to be recognised and treated by neurologists.

RESULTS

Of the 587 patients newly referred during the six months of enrollment, 483 (82%) were enrolled in the study, 92 (16%) refused participation, and 12 (2%) were ineligible. Sample characteristics are shown in table 1.

The most common primary diagnoses at the close of the baseline visit (fig 1) were neuropathy or neuromuscular and multiple sclerosis (MCS) were excluded. Research assistants approached patients in the clinic, explained the study, and obtained informed consent. This study was approved by the local institutional review board.

Study patients completed a series of questionnaires in the clinic and at 3 and 12 month follow up; only baseline data are included in this report. Pain was measured with the Brief Pain Inventory (BPI). We used the Patient Health Questionnaire nine item depression module (PHQ-9) to assess depression symptoms. Scores ≥10 on the PHQ-9 represent clinically significant depression. Neurologists were blinded to the PHQ-9 and BPI scores unless the patient endorsed thoughts of death as a depression symptom. We used the Medical Outcomes Study Short Form 12 (MOS SF-12) to measure health status. This scale provides composite measures of physical component summary (PCS) and mental component summary (MCS) health status. Normative United States population scores have been developed so that the median PCS and MCS score is 50 and lower scores indicate worse health status.

After the clinic visit, standardised clinic encounter forms and physicians’ dictated notes were reviewed to determine the primary neurological diagnosis and physician recognition and treatment of pain and mental health diagnoses. Research assistants used an intentionally liberal standardised list of words, phrases, and treatments (for example continuing a

METHODS

We identified consecutive newly referred patients to three hospital based general neurology outpatient clinics from January 2001 to August 2001. Patients with no cognitive or language barriers to communication were eligible. Patients referred to specialty clinics (for example epilepsy, Alzheimer’s

Abbreviations: BPI, Brief Pain Inventory; HRQoL, health related quality of life; MCS, mental component summary; MOS SF-12, Medical Outcomes Study Short Form 12; PCS, physical component summary; PHQ-9, Patient Health Questionnaire, nine item
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Neurologists were more likely to recognise and treat pain than depression, but the presence of pain and depression together did not significantly affect recognition and treatment rates. Pain was recognised in 77% with pain and depression and 72% of those with pain alone (p = NS), while depression was recognised in 48% of the pain with depression group and in 40% of those with depression alone (p = NS). Similarly, patients with depression and pain were no more likely than those with either condition alone to receive a treatment plan. Overall, only 41% of patients screening positive for depression and 50% with major depression received psychological treatment.

**DISCUSSION**

There is a high prevalence of depression and pain in patients referred to neurology outpatient clinics, with significant pain reported by more than two thirds of patients and depression present in one third. Although the prevalence varies somewhat by neurological diagnosis, no specific category of neurological disease is especially free of these conditions. Importantly, pain with depression is particularly common, being present in one in four newly referred outpatients in our sample. It is also clear that these conditions have a substantial adverse impact on patients’ physical and mental health, with mean health status scores below the national median in all groups except those with neither pain nor depression. Despite differences in the process of neurology referral in the United States and the United Kingdom, these results are similar to a recent British study conducted by Carson and colleagues.1

Our study also demonstrates the strong relationship between depression and pain. This highlights the importance of recognising both conditions, because patients’ health status and the perception of pain are significantly worse when both depression and pain are present. Moreover, this comorbidity has important implications for patient management, because other studies have documented greater difficulty in treating pain when depression is coexistent.2,3

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not significantly increase recognition and treatment. This is not surprising because it is well established that most patients with depression in primary care present with somatic rather than emotional complaints, and because prior studies suggest that depression is less likely to be recognised and treated when physical comorbidities compete with depression symptoms during an outpatient visit. Because neurologists were not directly asked after each visit about their impression of either pain or depression, their assessment of these conditions may have been underestimated. Alternatively, because an intentionally liberal review of the written documentation of depression was employed, the recognition of depression may have been overestimated.

This study also documents a higher screening prevalence of depression in neurology clinics compared with primary care, where approximately 13–17% of patients screen positive for depression. This higher prevalence has also been demonstrated in other specialty settings, including gastroenterology and rheumatology, and may indicate the need for increased training of specialists to recognise depression and for implementation of standardised screening programmes in settings where depression prevalence is high. Although we attempted to reduce the potential for selection bias by avoiding recruitment in identified specialty clinics, this may have made this cohort less generalisable to the private practitioner and reduced the assessment of common important conditions like epilepsy, a condition in which depression has been reported to be prevalent. Even if one argues that a neurologist (or any specialty consultant) is not the appropriate healthcare provider to treat depression in a given patient, recognising depression is important because it may affect treatment the neurologist prescribes. Further, neurologist recognition of depression may assist patients and their primary healthcare providers in obtaining optimal treatment for this debilitating disorder. Thus, neurologists might consider implementing simple, valid screening tests for depression in their newly referred patients, especially those with significant pain. Future studies should examine the longer term impact of these conditions on patient health status and satisfaction, the impact of depression on treatment for pain and other neurological symptoms, and the association between physician recognition and treatment of pain and depression and subsequent patient outcomes.

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**REFERENCES**


