General Hospital Psychiatry 36 (2014) 533–538

Contents lists available at ScienceDirect

General Hospital Psychiatry

journal homepage: http://www.ghpjournal.com

Emergency Psychiatry in the General Hospital

The emergency room is the interface between community and health care institution. Whether through outreach or in-hospital service, the psychiatrist in the general hospital must have specialized skill and knowledge to attend the increased numbers of mentally ill, substance abusers, homeless individuals, and those with greater acuity and comorbidity than previously known. This Special Section will address those overlapping aspects of psychiatric, medicine, neurology, psychopharmacology, and psychology of essential interest to the psychiatrist who provides emergency consultation and treatment to the general hospital population.

Influence of psychiatric comorbidities in migraineurs in the emergency department ☆

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ARTICLE INFO

Article history:
Received 10 January 2014
Revised 18 April 2014
Accepted 1 May 2014

Keywords:
Psychiatric
Migraine
Emergency department
Narcotics
Healthcare utilization

ABSTRACT

Objective: To examine how psychiatric comorbidities in migraineurs in the emergency department (ED) affect healthcare utilization and treatment tendencies.
Method: This is a cross-sectional analysis of 2872 patients who visited our ED over a 10-year period and were given a principal diagnosis of migraine.
Results: Compared to migraineurs without a psychiatric comorbidity, migraineurs with a psychiatric comorbidity had about three times more ED visits, six times more inpatient hospital stays and four times more outpatient visits. Migraineurs with psychiatric comorbidities received narcotics in the ED more often than migraineurs without psychiatric comorbidities ($P<0.0001$). In addition, migraineurs with psychiatric disorders were more likely to have a computed tomography scan of the head [Risk Ratio (RR) 1.42 (95% confidence interval (CI)=1.28–1.56, $P<0.001$)] or a magnetic resonance image of the brain [RR 1.53 (95% CI=1.33–1.76, $P<0.001$)] than patients without a psychiatric disorder when visiting our hospital center.
Conclusions: Migraineurs with psychiatric comorbidity who visit the ED have different healthcare utilization tendencies than migraineurs without psychiatric comorbidity who visit the ED. This is seen in the frequency of ED visits, outpatient visits and inpatient stays, in the medications administered to them and in the radiology tests they undergo.

1. Introduction

Migraine, an episodic headache disorder with intensely disabling attacks, affects 18% of American women and 6% of American men [1,2]. Migraine ranks eighth among the top 10 most disabling medical conditions and is a significant public health problem with substantial medical and economic consequences [3]. Migraine accounts for the majority of the five million headache visits to US emergency departments (EDs) annually [4]. The mean cost for a migraine-related ED visit in the US is US$775. This amounts to a total national annual cost of US$700 million [5].

Migraine is strongly associated with many psychiatric comorbidities [6–14]. The majority (51–58%) of migraineurs will meet criteria for at least one anxiety disorder in their lifetime, [6] and over 40% have depression [8,11]. Psychiatric comorbidities are associated with a 1.55 times increase in total migraine costs in the USA [15]. Physicians should have awareness of the psychiatric comorbidities of migraine because the psychiatric comorbidities may complicate the diagnosis, affect quality of life, affect compliance with treatment and change the course of migraine [6,16–20]. Psychiatric diagnosis is associated with conversion of episodic migraine to chronic migraine, [21] which in turn is associated with almost three times higher healthcare expenditures compared to total mean episodic migraine costs [15]. Because of the high prevalence of migraine and the substantial proportion of migraine sufferers who have psychiatric comorbidity, psychiatrists, ED physicians and other healthcare providers are very likely to encounter patients with migraine and psychiatric comorbidity. There is likely a shared underlying biology, as serotonergic mechanisms seem to be implicated in both conditions [6]. Thus, the study of migraine is very relevant for the field of psychiatry.

☆ There was no financial support for the research.
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http://dx.doi.org/10.1016/j.genhosppsych.2014.05.004
0163-8343/

There are few large, high-quality studies that specifically examine migraineurs who present to the ED. The American Migraine Prevalence and Prevention (AMPP) study, a population-based study, showed that a small proportion of the migraine patient population accounts for almost half of all ED visits for migraine. The AMPP researchers also found that patients who visited the ED were more likely to have depression and to be of lower socioeconomic status [22]. Few studies examine the psychiatric comorbidity of migraine patients who use the ED for treatment of their headaches. Given this paucity of information, it would be useful to better understand how psychiatric comorbidities (such as affective disorders, psychotic disorders, anxiety disorders and personality disorders) are associated with ED use in migraine patients with both conditions. Different patterns of healthcare use or treatment in this group of patients might suggest ways in which their care is deficient or could be improved.

We sought to determine whether psychiatric comorbidities in migraine patients in the ED were associated with increased healthcare utilization, specifically visits to the ED, outpatient medical visits or inpatient hospital stays, compared to migraine patients with comorbid psychiatric diagnoses. We also sought to determine whether the presence of psychiatric comorbidities was associated with the type of treatment provided in the ED. Finally, we examined whether psychiatric comorbidity was associated with the use of head imaging over the 10-year period examined in this study.

2. Methods

This was a cross-sectional analysis of data obtained from the Partners Research Patient Data Registry (RPDR). The RPDR is a computerized database that stores administrative and clinical encounter data from hospitals and clinics in the Partners Healthcare system. Partners is a nonprofit organization of eight hospitals and other healthcare providers. It is the largest healthcare provider in Massachusetts and has a substantial share of the market in the greater Boston metropolitan area.

The RPDR captures and aggregates clinical encounter and other patient data from a variety of different sources within Partners. For example, information about diagnoses can be derived from a number of different sources, including the Hospital Decision Support System, the Physician Billing System and the proprietary electronic medical record used by hospitals and clinics in the Partners system, known as the longitudinal medical record (LMR).

The RPDR identifies diagnoses by ICD9 codes and also from problem lists generated within the electronic medical record. We queried the diagnoses using a hierarchical tree structure of RPDR-derived terms. These RPDR terms have been developed in order to consistently and reliably identify specific conditions. These terms will identify patients who have received ICD9 codes for the relevant condition but also patients who may simply have had the condition noted in a problem list. Thus, the RPDR terms identify a more complete sample of patients with the condition of interest, since they include but are not limited to ICD9 or other billing codes. For this study, we retrieved data only on patients seen in the ED of the Massachusetts General Hospital (MGH), an academic tertiary care hospital, unless otherwise noted.

We first queried RPDR for the number of unique patients who had visited the MGH ED between January 1, 2003 and December 31, 2012 and received a primary discharge diagnosis of migraine at this visit. As noted above, the diagnosis of migraine could be based on ICD-9 billing codes or LMR problem-based codes. These broad codes include patients who have more specific migraine subtypes. We limited our search to patients who were between the ages of 18 and 64 because many common psychiatric problems may not yet have been diagnosed in younger patients, and these patients are more likely to have migraine-equivalent conditions such as recurrent abdominal pain that have not been recognized as migraine. We excluded patients age 65 and older because they are more likely to have stroke or other secondary causes of headache that may be erroneously diagnosed as migraine.

Within this population of migraineurs, we searched for subgroups of patients with and without comorbid psychiatric diagnoses. As noted above, the RPDR identifies diagnoses by ICD9 codes and also from problem lists generated within the electronic medical record. To search for psychiatric diagnoses we again used the proprietary hierarchical RPDR diagnostic tree structure to select search terms. From this list, we searched for patients with the following diagnoses: neurotic depression, anxiety states, personality disorders, affective psychoses, schizophrenic states and paranoid states. We set the search so that the psychiatric diagnoses could have been entered at any visit to the Partners Healthcare System. This was intended to capture all psychiatric diagnoses. Table 1 shows the diagnoses that are captured by these proprietary search terms.

For the overall group of migraineurs and the subgroups with and without psychiatric comorbidity, we identified the average number of ED, outpatient and inpatient visits for any reason over the 10-year study period.

To identify whether the presence of psychiatric comorbidity was associated with type of pharmacologic treatment received in the ED

Table 1
General RPDR search terms and specific diagnoses captured by each

RPDR search term	Diagnoses identified by this search term
Anxiety states	Anxiety states (ICD9 300.0)
	Depersonalization syndrome (ICD9 300.6)
	Hypochondriasis (ICD 9 300.7)
	Hysteria (ICD9 300.1)
	Neurasthenia (ICD9 300.5)
Affective psychoses	Affective disorder-oncall
	Bipolar affective disorder (ICD9 296.4-296.7)
	Bipolar disorder LMR
	Bipolar disorder-oncall
	Depression LMR
	Major depressive disorder (ICD9 296.0-296.3, 296.8)
	Other and unspecified affective psychoses (ICD9 296.9)
	Seasonal affective disorder-LMR
	Seasonal affective disorder-oncall
Paranoid states	Delusional disorder (DSM4 297.10.1)
	Other specified paranoid states (ICD 297.8)
	Paranoia (ICD(297.1)
	Paranoia-LMR
	Paranoia-oncall
	Paranoid state, simple (ICD9 297.0)
	Paraphrenia (ICD9 297.2)
	Shared paranoid disorder (ICD9 297.3)
	Unspecified paranoid state (ICD9 297.9)
Neurotic depression	Obsessive compulsive disorder-LMR
	Obsessive compulsive disorder-oncall
	Obsessive compulsive disorder (ICD9 300.3)
Schizophrenic states	Acute schizophrenic episode (ICD9 295.4)
	Catatonic type schizophrenia (ICD9 295.2)
	Disorganized type schizophrenia (ICD9 295.1)
	Latent schizophrenia (ICD9 295.5)
	Other specified types of schizophrenia (ICD9 295.8)
	Paranoid type schizophrenia (ICD9 295.3)
	Residual schizophrenia (ICD9 295.6)
	Schizo-affective type schizophrenia (ICD9 295.7)
	Simple type schizophrenia (ICD9 295.0)
	Unspecified type schizophrenia (ICD9 295.9)
Personality disorders	Affective (ICD9 301.1)
	Antisocial (ICD9 301.7)
	Compulsive (ICD9 301.4)
	Dependent (ICD9 301.6)
	Explosive (ICD9 301.3)
	Histrionic (ICD9 301.5)
	Narcissistic (ICD9 301.8)
	Paranoid (ICD 301.0)
	Personality disorder not otherwise specified (ICD9 301.9)
	Personality disorder not otherwise specified-oncall
	Personality disorder not otherwise specified-LMR