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Reducing severity of comorbid psychiatric symptoms in an epilepsy clinic using a colocation model: Results of a pilot intervention

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ABSTRACT

Rationale: Patients with epilepsy (PWEs) and patients with nonepileptic seizures (PWNESs) constitute particularly vulnerable patient populations and have high rates of psychiatric comorbidities. This potentially decreases quality of life and increases health-care utilization and expenditures. However, lack of access to care or concern of stigma may preclude referral to outpatient psychiatric clinics. Furthermore, the optimal treatment for NESs includes longitudinal psychiatric management. No published literature has assessed the impact of colocated psychiatric services within outpatient epilepsy clinics. We, therefore, evaluated the colocation of psychiatric services within a level 4 epilepsy center.

Methods: From July 2013 to June 2014, we piloted an intervention to colocate a psychiatrist in the Dartmouth-Hitchcock Epilepsy Center outpatient clinic one afternoon a week (0.1 FTE) to provide medication management and time-limited structural psychotherapeutic interventions to all patients who scored greater than 15 on the Neurological Disorders Depression Inventory for Epilepsy (NDDI-E) and who agreed to referral. Psychiatric symptom severity was assessed at baseline and follow-up visits using validated scales including NDDI-E, Patient Health Questionnaire-9 (PHQ-9), Generalized Anxiety Disorder-7 (GAD-7), and cognitive subscale items from Quality of Life in Epilepsy-31 (QOLIE-31) scores.

Results: Forty-three patients (18 males; 25 females) were referred to the clinic over a one-year interval; 27 (64.3%) were seen in follow-up with a median of 3 follow-up visits (range: 1 to 7). Thirty-seven percent of the patients had NESs exclusive of epilepsy, and 11% of the patients had dual diagnosis of epilepsy and NESs. Psychiatric symptom severity decreased in 84% of the patients, with PHQ-9 and GAD-7 scores improving significantly from baseline (4.6 ± 0.4 SD improvement in PHQ-9 and 4.0 ± 0.4 SD improvement in GAD-7, p-values < 0.001). Cognitive subitem scores for NDDI-E and QOLIE-31 at their most recent visit were significantly improved compared with nadir scores (3.3 ± 0.6 SD improvement in NDDI-E and 1.5 ± 0.2 SD improvement in QOLIE-31, p-values < 0.001). These results are, moreover, clinically significant—defined as improvement by 4–5 points on PHQ-9 and GAD-7 instruments—and are correlated with overall improvement as measured by NDDI-E and cognitive subscale QOLIE-31 items.

Conclusion: A colocated psychiatrist demonstrated reduction in psychiatric symptoms of PWEs and PWNESs, improving psychiatric access and streamlining their care. Epileptologists were able to dedicate more time to managing epilepsy as opposed to psychiatric comorbidities. As integrated models of collaborative and colocated care are becoming more widespread, mental health-care providers located in outpatient neurology clinics may benefit both patients and providers.

1. Introduction

1.1. Psychiatric comorbidities in patients with epilepsy and nonepileptic seizures

Psychiatric comorbidities are significantly more prevalent in the population with epilepsy, resulting in a lower quality of life and a rate of suicide much higher than in the general population [1]. Untreated

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comorbid psychiatric conditions also lead to increased health-care costs in addition to epilepsy's estimated annual cost of $15.5 billion [2] in this population which produces a significant health-care burden [3, 4]. Patients with nonepileptic seizures (NESs), which can coexist with epilepsy, also suffer from high rates of psychiatric comorbidities [5].

Furthermore, recent research has highlighted the significant role of psychiatric comorbidity in excessive health-care utilization [6, 7]. The 2012 Institute of Medicine report, "Epilepsy Across the Spectrum: Promoting Health and Understanding [5]", identifies major gaps in research and care delivery regarding the psychosocial aspects of epilepsy and emphasizes the need to identify and treat the comorbid health consequences of epilepsy. As a result, awareness of depression and psychiatric comorbidities is becoming increasingly important in improving the delivery of epilepsy care [8, 9].

There are many barriers to addressing comorbid psychiatric conditions including underrecognition of symptoms, limited access to appropriate mental health care, lack of sufficient community resources, deficit of knowledge regarding treatment options by the epilepsy provider, fear of adverse reactions or pharmacokinetic interactions of psychiatric medications, transportation restrictions, and reluctance on the part of the patient [1]. Perceived stigma of psychiatric diagnoses [10] may preclude optimal and timely management of comorbid psychiatric symptoms in patients seen in an epilepsy clinic.

While some researchers have trialed depression screening for patients with epilepsy within the outpatient setting [11], there has been little published literature regarding the impact of colocated or embedded behavioral health services within the outpatient epilepsy clinic setting. Therefore, we piloted the addition of an embedded psychiatric clinician in our epilepsy clinic to decrease the severity of patients' psychiatric symptoms, support the primary outpatient neurologist in the psychiatric care of patients with epilepsy, and reduce waiting times for psychiatric appointments.

1.2. Objective

Our aim was to address psychiatric comorbidities and reduce active psychiatric symptoms in patients with epilepsy by piloting an intervention to provide colocated psychiatric services within a level 4 epilepsy center outpatient clinic. We hypothesized that providing collocated services would enable timely, efficient, and accessible psychiatric care to be delivered to patients with epilepsy in a familiar and comfortable environment and allow coordination of care with regularly scheduled appointments with their primary epilepsy clinician.

2. Material and methods

2.1. Context

The Dartmouth-Hitchcock Medical Center (DHMC) is an academic medical center in Lebanon, New Hampshire, that has an outpatient epilepsy clinic, staffed by four neurology attending physicians specializing in epilepsy and/or behavioral neurology. The ambulatory epilepsy clinic is part of the outpatient component of the Dartmouth-Hitchcock Epilepsy Center, the only level 4 epilepsy center in Northern New England (New Hampshire, Maine, and Vermont) and serves the rural population of this region. Prior to this undertaking, there were no psychiatrists, psychologists, social workers, or behavioral health clinicians associated with the clinic.

2.2. Method of referral and treatment

Patients were identified for referral to the embedded psychiatric clinician (EPC) within the outpatient epilepsy clinic in several ways. As a quality measure and preceding each scheduled epilepsy appointment, comorbid psychiatric conditions were assessed via an electronic screening tool adapted from the one created by Gilliam et al. [12]. This tool quantifies symptoms of depression (NDDI-E, scored 6–24, with scores >15 suggestive of major depression) and a quality of life (QOL) Likert scale (scale of 1–10, with 10 equaling best quality of life).

First, an NDDI-E score greater than 15 would alert the primary outpatient neurologist, who would discuss with the patient whether or not they would like an opportunity to see the embedded psychiatric clinician. Second, any patients determined by an epilepsy clinician to be at a higher risk of having an increased seizure frequency due to contributing psychiatric comorbidities were also referred to the EPC. Third, patients who were thought to have NESs based on VEEG admission results or clinical history were referred. Last, neurology attending physicians, fellows, and residents who were made amply aware of this new service could refer any patients they thought would benefit from improved management of psychiatric comorbidities.

The EPC was a senior psychiatry resident with an interest in psychosomatic medicine, neurology, and specifically epilepsy, who was directly supervised by attending physicians from both the departments of Neurology and Psychiatry at DHMC. The full-time equivalent of this service was 0.1 or 4 h of time per week. The EPC began providing medication management as well as time-limited structural psychotherapeutic services from July 2013 to June 2014. Identified patients were scheduled for a 60-minute appointment with the EPC; follow-up appointments were either 30 or 60 min at the discretion of the EPC and were scheduled as often as was clinically indicated.

2.3. Outcome measures

The severity of patients' psychiatric comorbidities was measured at each appointment using the Patient Health Questionnaire 9 (PHQ-9) [13] (score ranging from 0 to 27, where greater is more severe); Generalized Anxiety Disorder-7 [14] (score ranging from 0 to 21, where greater is more severe); Neurological Disorders Depression Inventory for Epilepsy (NDDI-E) [12] (score ranging from 6 to 24, where greater is more severe); and cognitive subscale items from the Quality of Life in Epilepsy (QOLIE-31) [15] (score ranging from 0 to 10, where 10 is best). Patient Health Questionnaire-9 and Generalized Anxiety Disorder-7 surveys were administered by the EPC manually at each appointment, and NDDI-E and QOLIE-31 subitem surveys were completed electronically either online or using tablets immediately prior to the appointment in the waiting room.

2.4. Statistical analysis

To test the effect of the intervention, we made comparisons between baseline scores, nadir scores, and posttreatment scores. Given that there were assessments performed at multiple time intervals, statistical analysis utilized the two-factor ANOVA with repeated measures on one factor. A post hoc paired *t*-test was used to compare continuous data pre- and postintervention with the significance level set at 0.017 for the repeated post hoc tests.

3. Results

Forty-three patients (18 males; 25 females) were referred to the clinic over a one-year interval (Table 1); 27 (64.3%) were seen in follow-up with a median of 3 follow-up visits (range: 1 to 7). Thirty-seven percent of the patients had NESs exclusive of epilepsy, and 11% of the patients had dual diagnoses of epilepsy and NESs. Of note, 85.2% of the patients seen by the embedded psychiatrist were on preexisting psychotropic medication.

Table 1 highlights the demographics of clinic patients followed. The most common reason for referral to the EPC was active depression or anxiety, which was usually in the context of a patient's NESs either becoming more frequent or contributing to the frequency of epileptic seizures. A median of 5 patient encounters occurred weekly during