SUICIDALITY AND SELF INJURIOUS BEHAVIOR

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Evaluation of a depression case management service: Improving depression care and impact on suicide assessment

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Abstract

Introduction: Suicide is a leading cause of death in the US. Many factors impact suicide and suicide prevention; however, improved awareness, recognition, and depression management account for some of the best suicide prevention strategies.

Methods: A depression case management service, compared to usual care, was evaluated for its ongoing assessment of patients with depression and improvements in care.

Results: Case management demonstrates improved documentation of PHQ9 scores, response rates, and remission rates when compared to usual care.

Discussion: Additional benefits of case management are seen in improved suicide assessment and potential for intervention and access to care.

Keywords: depression, case management, suicide, suicide prevention

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Background

In 2011, the Centers for Disease Control estimated that suicide accounted for 12.7 deaths per 100,000 people in the United States and was the 10th leading cause of death.[1] Of the suicide deaths, around 20% are veterans.[2]

Several risk factors for increasing the relative odds of suicide attempt have been identified in the literature: active use of illicit substances, active use of alcohol, recent loss of an interpersonal relationship, and having an active episode of major depression. An active case of major depression alone has been shown to increase the relative odds of suicide attempt by as much as 42 times.[3] Other predictors of suicidal behavior may include severe anxiety, insomnia, anhedonia, inability to maintain a job, and recent onset of impulsive behavior.[4] Greater depression severity, feelings of hopelessness, and active suicidal ideation have all been associated with increased risk of suicide attempts.[5]

Suicide prevention strategies are generally broad-based, incorporating awareness, education, and individual interventions.[6] One important factor for prevention of suicide is recognition and treatment of major depression by primary care providers.[3] As a major cause of disability worldwide and a significant source of economic burden, it has been suggested that a majority of depression management should be provided by primary care rather than specialists. Depression-related improvement in patient outcomes has been shown previously with case management. Current guidelines suggest several elements of good case management, including 6 to 12 months of management, monitoring medication for tolerability and adherence, assessing for improvement of depression symptoms using an objective tool, assessing and responding to crisis, providing education, taking responsibility for follow-up, and taking action when patients are not meeting the expectations of the prescribed care.[7-10]

This evaluation of one depression case management service for impact on patient outcomes included assessment of change in Patient Health Questionnaire-9 item evaluation (PHQ9) scores from baseline and at key time

intervals, rates of assessment for side effects and suicidal ideation, rates of use and referral to additional mental health services.

Methods

Case Management Service

A depression follow-up service, managed by a registered nurse within one Veterans Affairs medical center, is in place for depressed patients identified in the primary care environment. The service was instituted in June 2008. At any given time, there are between 60 and 150 veterans enrolled in the service. The service enrolls patients after primary care providers or primary care–based psychiatrists evaluate depressive symptoms and prescribe medication. Referral to the service is dependent solely on the prescribers' preference. The telephone-based service involves follow-up with patients at 2, 6, and 12 weeks postprescription. During phone follow-up, the patient is reassessed for depressive symptoms using the PHQ9 evaluation and surveyed for medication side effects. Each call includes an assessment for current suicidal ideation and additional care needs. If necessary, referrals to primary care, psychiatry, psychology, and a variety of specialty services can be made for follow-up. These visits are recorded with a standardized note template that additionally serves to guide and standardize each visit.

Patient Identification and Randomization

In this retrospective cohort study, chart review was conducted of 101 patients initiated on antidepressant therapy between January 1, 2012, and December 31, 2012. A continuously maintained database was used to randomly identify 50 patients enrolled in the nurse-managed case management service between January 1, 2012, and December 31, 2012. The control group consisted of 51 randomly selected patients (N = 101) identified using the Veterans Affairs computerized patient record system (CPRS) who were not enrolled in the case management service, followed by primary care providers, and were provided the usual care.

Inclusion criteria

- Patients receiving a new prescription for an antidepressant medication in the primary care setting between January 1, 2012, and December 31, 2012
- Patients with a diagnosis of major depressive disorder

Exclusion criteria

- Patients with a baseline PHQ9 of less than 10
- Patients with serious mental illnesses (ie, schizophrenia and bipolar disorder)

Outcomes

In assessing the effectiveness of case management versus usual care, a primary outcome of change in PHQ9 from baseline at 2 to 6 weeks, 6 to 12 weeks, 12 to 26 weeks, and 26 to 52 weeks after the initiation of therapy was considered. Additional outcomes examined included suicidal ideation assessment, side effect assessment, additional service utilization, and guideline adherence in terms of recommended follow-up and duration of therapy.

Data Collection

All data were collected using retrospective chart review of the electronic medical records maintained in CPRS. Data were deidentified, and collection included characterization of patients in each group to identify characteristics of those patients most commonly referred to case management and PHQ9 documented at baseline, 2 to 6 weeks, 6 to 12 weeks, 12 to 26 weeks, and 26 to 52 weeks. Additional data included remission rate defined as PHQ9 < 4 for > 1 month and rate of adequate response defined as PHQ9 < 10, 5 point, or 25% reduction in PHQ9. Medication adherence measures included time on any antidepressant therapy based on refill history. Rates of no-show events out of scheduled appointments and rate of psychology or social work services were also collected

Statistical Analysis

Appropriate statistical tests were used to determine differences between groups. Student *t* tests were used for continuous data and chi squared comparisons for discrete data. PHQ9 scores were carried forward for analysis.

Results

Differences in baseline characteristics (Table 1) of patients enrolled in case management versus usual care control group were analyzed for statistical significance. The usual care group had more patients with comorbid posttraumatic stress disorder (PTSD), 29% versus 16% ($P = .038$) and hyperlipidemia, 47% versus 32% ($P = .034$). No additional characteristics were significantly different between groups.

The intervention group demonstrated decrease in PHQ9 at all time points (Table 2). The control group demonstrated decrease in PHQ9 at most time points; however, at 26 to 52 weeks, a 0.2 (SD = 6.2) point increase was observed. Maximum decrease in PHQ9 was seen at weeks 12 to 26 for both groups with an average decrease of 3.7 (SD = 6.0) points in the intervention group and 0.5 (SD = 5.3) points in the usual care group.

In addition, the intervention group had a greater rate of follow-up, and the control group had more baseline PHQ9

TABLE 1: Baseline characteristics of patients initiating antidepressant therapy

	Case Management (N = 50)	Usual Care (N = 51)	*P* value
Age, mean (SD)	61 (16)	57 (19)	
Sex (male), N (%)	46 (92%)	46 (90%)	.655
Ethnicity (white), N (%)	47 (94%)	45 (88%)	.207
Rate of significant comorbidities associated with depression			
Anxiety	16 (32%)	13 (25%)	.291
PTSD	8 (16%)	15 (29%)	.038
Diabetes mellitus type II	14 (28%)	13 (25%)	.669
Coronary artery disease	10 (20%)	10 (20%)	.876
Hypertension	19 (38%)	25 (49%)	.121
Hyperlipidemia	16 (32%)	24 (47%)	.034
Congestive heart failure	1 (2%)	2 (4%)	.479
Tobacco use disorder	17 (34%)	12 (24%)	.066

scores documented. Comparison of the intervention group versus usual care found 20 and 22 baseline PHQ9 scores, 43 and 6 PHQ9 scores recorded at weeks 2 to 6, 25 and 6 recorded PHQ9 scores at week 6 to 12, 15 and 4 recorded at weeks 12 to 26, and 9 and 5 charts had PHQ9s recorded for weeks 26 to 52, respectively (Table 2).

The intervention group demonstrated a maximal response rate of up to 60% at weeks 6 to 12 (Table 3). A maximal response rate of 14% was observed at 12 to 26 weeks for usual care. Overall, the documented response rates of case management and usual care were 66% and 16% ($P < .001$), respectively. Remission was documented in 26% of the case management group and 6% of the usual care group ($P = .005$).

Suicide assessment was documented in 92% of case management and 51% of usual care group ($P < .001$). Screening for adverse effects was documented in case management and usual care groups, 88% and 20%, respectively ($P < .001$).

No statistical differences between groups were found in appointment no-show rates or utilization of psychotherapy services.

No statistical differences were noted in the duration of antidepressant therapy between the case management and usual care groups. The proportion of patients remaining on initial antidepressant therapy shows steady decline over the course of the 1-year follow-up period (Figure); no indication that case management changes this element of adherence to guideline recommendations is noted in these results.

Discussion

This small retrospective study found significant improvements in PHQ9 scores across all time points for patients receiving case management. The depression response and remission rates were significantly improved in the case management group. Although the improvements seen may be attributed to improved care, this data is impacted considerably by clearly higher follow-up rates and increased documentation as compared with usual care; documentation may be driving the differences seen.

Increased follow-up and documentation has interesting implications in depression management in the primary care setting. Although patients receiving case management services did not demonstrate differences in no-show rates

TABLE 2: Changes in PHQ9 in case management versus usual care

	Case Management (N = 50)		Usual Care (N = 51)		
	n	Mean (SD)	n	Mean (SD)	*P* value
PHQ9 baseline	20	19.1 (5.1)	22	18.5 (4.9)	.72
PHQ9 weeks 2 to 6	43	10.9 (6.7)	6	16.6 (6.4)	< .001
Change in PHQ9 from baseline		−2.2 (5.3)		−0.3 (2.8)	.029
Total response	27 (54%)		6 (12%)		< .001
PHQ9 weeks 6 to 12	25	10.2 (7.2)	6	16.4 (7.2)	< .001
Change in PHQ9 from baseline		−2.5 (5.0)		−0.5 (5.3)	.018
Total response	30 (60%)		6 (12%)		< .001
PHQ9 weeks 12 to 26	15	9.2 (7.5)	4	15.8 (7.6)	< .001
Change in PHQ9 from baseline		−3.7 (6.0)		−0.5 (5.3)	.007
Total response	29 (58%)		7 (14%)		< .001
PHQ9 weeks 26 to 52	9	9.6 (7.5)	5	16.5 (7.5)	< .001
Change in PHQ9 from baseline		−3.4 (6.3)		0.2 (6.2)	.006
Total response	28 (56%)		7 (14%)		< .001

TABLE 3: Summary of additional data assessing differences between case management and usual care

	Case Management (N = 50)		Usual Care (N = 51)		
	N (%)	Mean (SD)	N (%)	Mean (SD)	*P* value
Documented response to antidepressant therapy	33 (66%)		8 (16%)		< .001
Documented remission of depression symptoms	13 (26%)		3 (6%)		.005
Suicide screening documented within 12 weeks	46 (92%)		26 (51%)		< .001
ADR screening documented within 12 weeks	44 (88%)		10 (20%)		< .001
Number of no-show appointments within 1 year		0.7 (1.5)		0.6 (1.1)	.880
Psychotherapy services utilized by the patient	14 (28%)		18 (35%)		.431

for appointments or the rates at which they utilized additional medical or mental health services, it is reasonable that their access to additional services is nevertheless improved. Patients receiving case management experienced improved follow-up and additional opportunities to initiate additional care as needs are expressed or identified.

Previous studies have indicated that the individual providing case management has a profound impact on the success of that service.[11] The case management evaluated in this study was provided by a registered nurse. The service is necessarily subject to the scope of practice of the case manager. It is possible that additional benefits of case management and access to services would be seen in a service provided by a practitioner with a scope of practice that includes referral to additional services and medication management.

The increased documentation, follow-up, and alignment of care with published guidelines found in the case management group have additionally demonstrated a clearly improved rate of assessment for adverse effects and suicidal ideation. This study was not designed to identify differences in suicide rates or suicidal behavior; however, the case-managed patients were consistently assessed for overt suicidal behavior and thought as well as changes in their condition that have been implicated in increased odds of suicide attempts with assessment rates of 92% in the intervention group and only 51% in usual care. Case-managed patients had additional opportunities to access services and receive evaluation or care for suicidal thoughts and behaviors.

Continuation of initial antidepressant therapy did not appear to be impacted by case management. This is not congruent with the demonstrated continued improvement in PHQ9 scores. Although data was carried forward and many effects are impacted by small sample size and low rates of follow-up and documentation, it is possible that case management allowed medication therapy failures to be identified and addressed more rapidly through follow-up care and changes in medication therapy.

Although a difference in the rate of PTSD and hyperlipidemia was found between case management and usual care, it is unclear what caused this difference. It is likely due to the small sample size rather than a difference in practice standards for these patients. Although these

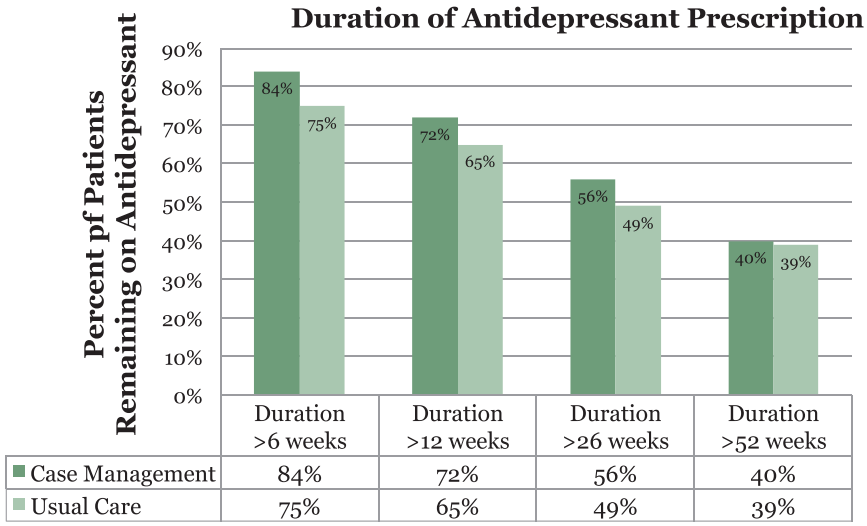

FIGURE: Duration of antidepressant therapy after initial prescription

disease states may impact depression and depression management, it is not likely that these differences explain differences in results found in this study.

This study is limited by its small size. Additionally, the study was designed to determine if differences would be seen in case management versus usual care according to guideline recommendations; case management services are likely to be designed according to guideline recommendations, and therefore, such comparisons may reflect some confirmation bias. Lack of documentation in usual care may have further inflated the differences seen in patient outcomes between the two groups.

Conclusion

Case management demonstrates improved documentation and monitoring of PHQ9 scores, response rates, and remission rates when compared to usual care. Adherence to guideline recommendations is improved with case management. Additional benefits of case management are seen in improved suicide assessment and potential for intervention and access to care.

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