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Association Between Depression and Contact Precautions in Veterans at Hospital Admission

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Abstract

Contact Precautions (CP) have been associated with depression and anxiety. We enrolled 103 patients on admission to a VA hospital and administered the Hospital Depression and Anxiety Scale (HADS). The mean unadjusted HADS score was 10% higher in patients on CP (14.3 vs 13.0, $p=0.47$) and the association stronger after adjusting for other variables (mean difference 2.2, $p=0.21$). Although underpowered, in the largest study to date, patients on CP tended towards more depression and anxiety.

Keywords

Depression; anxiety; isolation; contact precautions

Background

Infections caused by multidrug-resistant organisms (MDRO) are associated with increased length of stay, costs and mortality in hospitalized patients.¹ In the Department of Veterans Affairs (VA), Active Surveillance for methicillin-resistant *Staphylococcus aureus* (MRSA) is required on hospital admission, and Contact Precautions are used for patients with MRSA or other MDROs. Although Contact Precautions are a key tool for infection control,¹ some evidence has pointed to potential negative outcomes for people on Contact Precautions. A recent review of the literature concluded that although studies are often methodologically limited, use of Contact Precautions may have adverse psychological effects including depression and anxiety.² Studies that examined depression and anxiety in hospitalized patients in relation to Contact Precautions have been largely limited to small cross-sectional studies containing few patients on Contact Precautions.² No studies of the psychological impact of Contact Precautions have been carried out in the VA system, a population with a

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high prevalence of depression and other psychological disorders.³ Depressed mood has an important impact on general inpatients including that they are less likely receive adequate care, follow treatment plans, follow healthy behaviors and diet advice.⁴

Our objective was to measure the prevalence of depression and anxiety on admission to a VA acute care hospital using a standardized scale to determine if patients on Contact Precautions are at higher risk. If placement on Contact Precautions is associated with higher levels of depression and anxiety, these patients could be targeted for intervention and future study.

Methods

From 6/1/2009 to 10/30/2009, patients admitted to the general acute-care units at the Baltimore VAMC were approached for participation. Enrollment took place within 48 hours of admission. After completing informed consent, patients were administered a questionnaire including demographic information, a question about patient comfort with Contact Precautions and the Hospital Anxiety and Depression Scale (HADS). Administrative data was obtained from the VA electronic database. The study was approved by the University of Maryland Baltimore Institutional Review Board and the VA Research and Development (R&D) committee of the VA Maryland Health Care System.

The Hospital Anxiety and Depression Scale is a 14-item scale with 7 items devoted to anxiety and 7 items devoted to depression. The HADS scale measure was designed to reduce the interference of somatic problems in the detection of depressive symptoms in medically ill patients.⁵ Each HADS score (depression and anxiety), ranges from 0-21. A score of 0-7 on either measure indicates non-cases on that subscale, and a score of 8 Or higher on either scale represents possible or probable cases.⁵ The HADS has been found to be reliable and valid in general medical patients.⁵ Previous studies used 1.5 difference on either scale (or a 3 point total difference) as a minimal important difference.⁶

In our hospital, Contact Precautions requires the use of a disposable gown and gloves for patient contact. To assess patient comfort with Contact Precautions, Contact Precautions were described and patients were shown a picture of a healthcare worker dressed in gown and gloves.

Statistical analyses utilized Fisher's exact test and T-tests or Wilcoxon to compare means and medians. Linear regression models examining the mean difference HADs scores associated with Contact Precautions were constructed using variables previously associated with depression in the literature (age, sex, education level).

Results

103 patients completed the HADs measure within 48 hours of admission to the VA hospital (80% within 24 hours). Most of the sample was male (96/103). Of 103 admissions, 20 were on Contact Precautions. There was a trend for patients in Contact Precautions to be slightly older (Table 1). There were no significant differences in comorbidities between patients on and not on Contact Precautions. 38% of the sample reported not being comfortable with Contact Precautions.

The mean HADS score in the group on Contact Precautions was 14.3 (95% CI 11.1-17.4 Median 14.5), with a mean HADs score of 13.0 (95% CI 11.4-14.5 Median 12.5) in the non-Contact Precautions group. The score was not significantly different between the groups ($p=0.47$). After adjusting for age, sex and education level, there was a trend towards higher HADs scores in the Contact Precautions group (Mean difference between groups=2.22, $p =$

0.21). (Table 2) The odds for having either probable depression or anxiety were nearly two times higher in the Contact Precautions group (OR: 1.87 CI: 0.61-5.69) but were not statistically significant. The Contact Precautions group was broken down by those on Contact Precautions for < one year vs. > one year. The mean HADS in patients on Contact Precautions < 1 year was 2.6 points higher than patients not on Contact Precautions (p=0.31) and the mean HADS in patients on Contact Precautions >1 year was 1.9 points higher than patients not on Contact Precautions (p=0.39)

Discussion

In this study, Hospital Anxiety and Depression Scale (HADS) scores tended to be higher in patients on Contact Precautions than patients who were not on Contact Precautions, but the difference was not statistically significant. We observed a difference in combined HADS score of 1.27 in the unadjusted analysis and 2.22 in the adjusted analysis although the study was underpowered to identify a smaller difference between groups. The increase in HADS scores appears greater in those with recent initiation of Contact Precautions, although the numbers are small.

Nearly 40% of the total sample was uncomfortable with Contact Precautions, this did not differ by whether a patient was currently on Contact Precautions.

Although we only had 22 Contact Precautions patients in our study, previous studies of depression and anxiety presented data on 8-27 patients in Contact Precautions². Other studies reported higher levels of depression in patients on Contact Precautions, but none exclusively studied patients at time of hospital admission.² To our knowledge, this is the first study designed to evaluate differences in levels of depressive symptoms and anxiety between patients on Contact Precautions and patients not on Contact Precautions at hospital admission. This is also the only study in a VA hospital. Previous studies, which are currently cited in the argument against Contact Precautions, measured symptom levels at varying points of hospitalization or nursing home care² or used subjective measures of depression.⁷

This study has several limitations. First, with only 20 people in Contact Precautions out of 103, we would only be able to detect a difference between the groups of 4.8 or greater based on a power calculation using alpha 0.05 and 80% power. Second, we have no record of pre-existing depression. Based on this study, we cannot determine if depression is the result of Contact Precautions or if Contact Precautions is simply a marker of patients with higher frequency of depression.

Although not statistically significant, our data suggests Veterans on Contact Precautions have more symptoms of depression and anxiety at admission. Larger longitudinal studies are needed to understand the association between depression and anxiety with Contact Precautions.

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Table 1

Demographic characteristics of patients on Contact Precautions and patients not on Contact Precautions.

	Total N=103	Contact Precautions N=20	No Contact Precautions N=83	P-value
Male	96 (93.2%)	17 (85.0%)	79 (95.2%)	0.13*
Age (Mean, Standard Deviation)	64.8 (13.1)	68.5 (14.7)	63.9 (12.6)	0.16#
High School Education	84 (81.6%)	16.0 (80.0%)	68 (81.9%)	0.99*
Length of Stay (Median, Interquartile Range)	2.8 (2.4)	2.9 (3.2)	2.7 (2.0)	0.73@
Uncomfortable with CP	38 (38.4%)	7 (36.8%)	31 (38.8%)	0.88**
ICD-9 code Depression	5 (4.9%)	0	5 (4.9%)	0.58*
Charlson Comorbidity Index (Median, Interquartile Range)	1 (3)	0.5 (1.5)	1 (3)	0.24@
Comorbidities				
Cerebrovascular disease	6 (5.8%)	0	6 (7.2%)	0.59*
Malignancy	16 (15.5%)	4 (20.0%)	12 (14.5%)	0.51*
Diabetes Mellitus	22 (21.4%)	4 (20.0%)	18 (21.7%)	0.99*
COPD	10 (9.7%)	1 (5%)	9 (10.8%)	0.68*
Heart Failure	12 (11.7%)	0	12 (14.5%)	0.12*
Renal Disease	16 (15.5%)	2 (10.0%)	14 (16.9%)	0.73*

* Fishers test,

@ Non parametric test,

T-test,

** Chi-Square test

Table 2

Unadjusted and adjusted differences in patients on Contact Precautions compared to those not on Contact Precautions by Hospital Anxiety and Depression Scale (HADS) represented as difference in absolute HADS score or odds of passing threshold for screening positive for depression or anxiety on HADS.

	Difference between HADS Score	Odds of screening positive for depression/anxiety in Contact Precautions by HADS	P-value
Unadjusted	1.27	1.35 (CI: 0.49 - 3.74)	0.47
Adjusted difference (Adjusted for age, gender & education level)	2.22	1.87 (CI: 0.61 - 5.67)	0.22