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Prevalence and correlates of complicated grief in adults who have undergone a coronary artery bypass graft

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Abstract

Background—Complicated Grief (CG) is a recently described mental health condition that follows bereavement. CG is often comorbid with depression and may also be associated with poor health outcomes. However, CG has not been studied in depressed medically ill populations. This study examined the prevalence, correlates, and impact of CG in depressed post-coronary artery bypass graft surgery (CABG) patients.

Methods—A 5-item CG screen was administered to 302 depressed post-CABG patients participating in a comparative effectiveness intervention trial at 7 Pittsburgh-area hospitals from March 2004 to September 2007. Eligible patients were randomly assigned to either a telephone-delivered collaborative care intervention for depression or their primary care physicians' usual care. Measures examined depression, physical and mental health-related quality of life, and physical functioning over 8 months.

Results—Compared to CG screen-negative patients, CG screen-positive patients were younger, more likely to: be female, non-White, have lost a partner or child, and to have used tobacco or antidepressants. At baseline, they had significantly higher depression and lower mental health scores. At 8 months, screen-positives had poorer physical functioning and marginally higher depression scores.

Limitations—The study lacked a definitive measure of CG. Moreover, the CG-positive group was relatively small, reducing the power to detect differences between groups or control for the possible influence of other variables on identified results.

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Conclusions—CG in depressed post-CABG patients is associated with negative health and mental health outcomes. These results underscore the importance of identifying and treating CG in depressed medically ill populations.

Keywords

complicated grief; coronary artery bypass graft; depression; screening; care management

INTRODUCTION

Complicated grief (CG) is an impairing disorder that occurs in about 10% of bereaved individuals (Middleton et al., 1996). Currently proposed for inclusion in the fifth edition of the American Psychiatric Association's Diagnostic and Statistical Manual (DSM) as "bereavement-related adjustment disorder," (American Psychiatric Association, 2011) CG is described as "yearning/longing for the deceased, intense sorrow and emotional pain, or preoccupation with the deceased or the circumstances of the death…difficulty accepting the death, intense anger over the loss, a diminished sense of self, a feeling that life is empty, or difficulty planning for the future or engaging in activities or relationships" (American Psychiatric Association, 2011). These symptoms are often confused with those of depression, and not infrequently the two syndromes co-occur (Schulz et al., 2006; Shear et al., 2006; Simon et al., 2007). Therefore we hypothesized that CG would be present in depressed participants in *Bypassing the Blues,* an NIH-funded comparative effectiveness trial that tested the effectiveness of telephone-delivered collaborative care in treating depression following coronary artery bypass graft (CABG) surgery (Rollman et al., 2009a; Rollman et al., 2009b). We also hypothesized that the presence of CG would impact treatment outcomes in both intervention and usual care (UC) conditions. The current report describes for the first time demographic and clinical correlates of CG in bereaved depressed post-CABG patients and examines effects of CG on depression and functional outcomes at baseline and 8 month follow-up.

METHODS

Details of study procedures for *Bypassing the Blues* have been previously published (Rollman et al., 2009a; Rollman et al., 2009b). All procedures were approved by the institutional review boards of the University of Pittsburgh, at each study hospital, and by an independent monitoring board. Briefly, post-CABG patients were recruited prior to hospital discharge from seven Pittsburgh-area hospitals between March 2004 and September 2007. Trained nurse recruiters approached medically-stable post-CABG patients to undergo screening with the two-item version of the Patient Health Questionnaire (PHQ-2) (Kroenke et al., 2003). An affirmative answer to either item (depressed mood or anhedonia (lack of interest or pleasure)) was considered a positive depression screen. To confirm eligibility, the nine-item Patient Health Questionnaire (PHQ-9) was adminsted via telphone two weeks after hospital discharge (Kroenke et al., 2001). Patients scoring ≥ 10 and met all other eligibility criteria were then randomized to receive either their physicians' "usual care" (n=152) or an 8-month telephone-delivered collaborative care depression intervention (n=150) at a 1:1 ratio (Rollman et al., 2009a; Rollman et al., 2009b).

During hospitalization, nurse-recruiters obtained information on socio-demographics and health services utilization, and conducted a medical chart review. At 2-weeks post-hospitalization and follow-up assessments at 2-, 4-, and 8-months, telephone assessors blinded to patients' treatment assignment collected information on health-related quality of life (HRQoL; SF-36-item Physical Summary Scale (PCS); and Mental Health Summary Scale (MCS)) (Ware et al., 1994) depression severity (17-item Hamilton Rating Scale for

Depression; HRS-D) (Freedland et al., 2002), and disease-specific physical functioning (Duke Activity Status Index; DASI) (Hlatky et al., 1989). The DASI is a 12-item measure of common activities of daily living which provides a standardized assessment of functional status. It includes items on personal care, household tasks, ambulation, recreational activities, and sexual function (Hlatky et al., 1989). Daily activities receive scores weighted more highly for more taxing activities, which are summed (minimum 0, maximum 58.2), where high scores represent better physical functioning and a score of zero indicates inability to perform any basic activities of daily living. In addition, telephone assessors collected data on social support with the 12-item Perceived Social Support Scale (PSSS) at baseline only (Zimet et al., 1988; Zimet et al., 1990).

The 5-item Brief Complicated Grief Questionnaire (BCGQ) was administered at the 2-month assessment to screen for CG in patients who reported ever experiencing the death of a close friend or relative. Patients who lost more than one loved one were asked to focus on the person whose loss was most difficult. The BCGQ includes items on: how much grief interferes with daily life, avoidance of reminders of the deceased, bothersome images or thoughts of the death, feelings of being cut off from others, and difficulty accepting the death. To reduce patient burden, the BCGQ was administered at the 2-month assessment. Data were also collected on loss-related variables, including the number of close friends or relatives lost, time since the most difficult death, how the most difficult death occurred, and relationship to the deceased. In keeping with the coding scheme used in previous reports (Kaltman and Bonanno, 2003), manner of death was coded as violent (accident, suicide, or homicide) or non-violent (illness). The BCGQ was developed for a telephone survey of Project Liberty service utilizers after the September 11th terrorist attacks and shows good reliability and validity (Fujisawa et al., 2010; Shear et al., 2006). Distribution of scores in the current sample ranged from 0–9 (possible range 0–10) and was highly skewed, such that a cut score of 4 seemed the best indicator of a positive CG screen.

The study intervention has been described in previous publications (Rollman et al., 2009a; Rollman et al., 2009b). In brief, a nurse care manager collaborated with a study psychiatrist and internist and the patient's primary care physician to develop individualized care plans that included information about depression and its care, initiation or modification of antidepressant pharmacotherapy, referrals to local mental health specialists (psychologist or psychiatrist), or any combination of these. In regular telephone sessions over the 8-months intervention, the nurse care manager reviewed treatment plans, monitored symptoms and medication adherence, imparted self-management skills, and encouraged engagement with other services. CG treatment was not an intervention component.

Descriptive statistics examined the range, mean, and standard deviations of all measures. Internal consistency of the BCGQ was assessed with Cronbach's α coefficient. Because BCGQ items were not normally distributed, we compared sociodemographic and clinical and functional status measures for those positive or negative for CG symptoms using Mann-Whitney *U* tests for continuous data and Fisher's Exact tests for categorical data.

To calculate changes in scores and effect sizes, we used a repeated measures mixed-effect model with time (all 4 time points) and BCGQ score. As in the initial *Bypassing the Blues* study analyses, SF-36 MCS and PCS, HRS-D and DASI scores were entered as outcome variables (Rollman et al., 2009a). Subject intercepts were treated as a random effect to account for individual differences at randomization, time was treated as a fixed-effect categorical variable, and CG (positive when BCGQ score ≥ 4) treated as a fixed effect dummy variable. To examine stability of findings, we also ran analyses with BCGQ treated as a continuous independent variable, and with a CG screen-positive cut score of 5 rather than 4, and found that results did not differ. All *p*-values were 2-tailed with significance

levels of .05 or less. All analyses were performed using SAS statistical software (SAS Institute Inc, Cary, North Carolina) using the Proc Mixed function to determine effect size changes and scores.

RESULTS

Most (n=273, 90.4%; 134 intervention, 139 usual care (UC)) of the 302 depressed patients had experienced the death of a loved one and completed the BCGQ. The internal consistency of the BCGQ was acceptable (Cronbach's α=.76), indicating that items had moderate homogeneity and therefore were likely to measure the same construct (Henson, 2001). At baseline, CG screen-positive patients were younger, more likely to be female, non-White, and currently unmarried than screen-negative patients (Table 1). Screen-positive patients were also more likely to have experienced the death of only one close friend or relative, to have lost a partner or child, and to have experienced their loss more recently.

At baseline, CG screen-positive patients were more likely to have used tobacco in the last year and to have used antidepressants in their lifetime and within the last two years. Screen-positive patients also reported higher levels of mood symptoms, lower mental HRQoL and less social support. At 8-month follow-up, regardless of treatment group, mixed effects models (Table 2) showed that DASI scores were significantly lower in the CG screen-positive group than screen-negative group. HRS-D scores were higher in the CG screen-positive than screen-negative group, and this is a potentially clinically significant difference in scores (2.66 points), with a trend towards statistical significance (p=.053). CG screen-positive showed no significant differences from screen-negative patients at 8-month follow-up on the SF-36 MCS or PCS.

DISCUSSION

Approximately 90% of depressed post-CABG participants in our study had experienced the death of a loved one and 1 in 7 screened positive for CG, a similar prevalence to other bereaved community samples (Middleton et al., 1996). A positive CG-screen was associated with more severe depression, poorer mental health related QoL, lower social support, higher tobacco use, increased use of antidepressant medication, and poorer disease-specific physical functioning. DASI scores at baseline were similar to those of other samples with coronary conditions. For example, in a study of 438 patients who underwent coronary revascularization, median DASI scores post-surgery were 13.45 (Nelson et al., 1991). At 8-month follow-up, CG screen-positive patients in our study continued to have lower disease-specific physical functioning and marginally higher depression scores than screen-negative patients.

The finding of greater depression severity in CG positive patients is consistent with previous studies (Schulz et al., 2006; Shear et al., 2006; Simon et al., 2007). The association of CG with tobacco use was also reported among those who lost a loved one in the 9–11 terrorist attacks (Neria et al., 2007). CG has been found in other studies to be associated with female gender, non-White race, low social support, younger age and loss of a spouse or child (Stroebe et al., 2007). Higher antidepressant use with CG has been previously reported (Schulz et al., 2006) and may be related to higher depression severity or to misdiagnosis of CG as depression.

Limitations of the study include the absence of a definitive measure of CG and the small number of patients in the CG screen-positive group. In particular, the effects of CG on depression outcome may have been significant with a larger sample. Investigation of CG was not an aim of the original study, and so we selected an instrument that was short and

easily administered. The BCGQ was designed as a simple screening measure and performed well in at least two previous studies (Fujisawa et al., 2010; Shear et al., 2006). However, there was no clinical interview to confirm the presence of CG. As in prior studies using this instrument (Fujisawa et al., 2010; Shear et al., 2006) screen-positive compared to negative patients had significantly worse baseline severity.

In addition, BCGQ scores could have been influenced by changes in depression after study enrollment, as the measure was only administered 2 months after baseline. However, the focus of the intervention on post-CABG depression, rather than grief over a loved one's death, limits this possibility. Previous research has found that CG does not respond well to standard treatments for depression (Pasternak et al., 1993; Reynolds et al., 1999) and that, left untreated, CG symptoms remain stable over time (Horowitz et al., 1997). Another possible limitation is that differences in outcomes may be more related to other variables that differ between the CG positive and negative groups (e.g. gender, marital status, social support, time since the death, race) than to CG status. To allow for comparison with previous analyses of this study sample (Rollman et al., 2009a), we did not include these variables in our mixed models. We also were concerned about having sufficient power to control for these factors. However, other studies have found that CG is significantly associated with mood and quality of life outcomes even when demographic and additional clinical variables are controlled (e.g. Silverman et al., 2000). Finally, patients with CG might have been less likely to agree to study participation, creating a selection bias.

Despite these limitations, the study has important implications. To our knowledge, this is the first study to examine CG in a population with coronary artery disease, or in any medically ill population. Our finding that CG-positive patients had worse outcomes regardless of the treatment received suggests that it is important to independently diagnose CG in depressed patients, and if present refer them for appropriate CG-focused treatment (Shear et al., 2005). More research is needed to examine the presence and impact of CG symptoms in other medically ill populations.

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Table 1

Baseline Characteristics of *Bypassing the Blues* Study Patients with Depression by Positive Complicated Grief Screen

	Positive Complicated Grief Screen		
	No (BCGQ <4) (n = 236)[a]	**Yes (BCGQ ≥ 4) (n = 37)[a]**	***P* value**
Demographics			
Age, mean (SD)	64.8 (10.6)	59.8 (11.5)	.02
Female	85 (36.0)	25 (67.6)	<.001
White	219 (92.8)	30 (81.1)	.03
Married	169 (71.6)	17 (46.0)	.004
Working, part-time or full-time	91 (38.6)	15 (40.5)	.86
Clinical variables			
SF-36 MCS[1], mean (SD), N	44.0 (10.9) 220	36.1 (12.0) 33	<.001
HRS-D[2], mean (SD), N	15.7 (6.8) 220	19.3 (7.5) 33	.009
Perceived Social Support Scale, mean (SD)	70.3 (10.4)	64.1 (13.9)	.01
Health variables			
SF-36 PCS[1], mean (SD), N	31.0 (7.28) 220	29.7 (6.38) 33	.20
Duke Activity Status Index[1], mean (SD), N	7.5 (7.08) 220	8.0 (5.30) 33	.33
Hypertension, N	201 (85.2) 220	30 (81.1) 33	.47
Stroke, N	18 (7.6) 220	4 (10.8) 33	.52
Myocardial infarction, N	107 (45.3) 220	21 (56.8) 33	.22
Congestive heart failure, N	49 (20.8) 220	5 (13.5) 33	.38
Tobacco use in past Year, N	52 (23.6) 220	16 (48.5) 33	.01
Antidepressant Pharmacotherapy			
Lifetime	73 (30.9)	21 (56.8)	.003
Within last 2 years	46 (19.5)	15 (40.5)	.01
Baseline	42 (17.8)	8 (21.6)	.65
Lost only one person[†], N	47 (23.6) 199	17 (51.5) 33	.003
A partner/spouse	18 (7.6)	8 (21.6)	.01
A child	15 (6.4)	6 (16.2)	.05
A parent	115 (48.7)	12 (32.4)	.08
Other relative	61 (25.9)	9 (24.3)	1
A friend	17 (7.2)	2 (5.4)	1
Time since the death[†] (years), mean (SD), N	17.0 (15.4) 199	8.3 (9.8) 33	.001
How the death occurred[†]			
Non-violent	173 (76.2)	29 (78.4)	1
Violent	27 (11.9)	4 (10.8)	1

Abbreviations: SF-36 MCS, Medical Outcomes Study Short Form Mental Component Scale; SF-36 PCS, Medical Outcomes Study Short Form Physical Component Scale; HRS-D, Hamilton Rating Scale for Depression; LOT-R, Life Orientation Test-Revised

[a] Data are reported as No. (%) unless otherwise indicated

[†] Administered at the 2-month blinded telephone assessment

[1] Higher scores indicate better health related quality of life

[2] Higher scores indicate more severe symptoms

Table 2

8-Month Mixed Model Estimates of Mean Scores by Positive Complicated Grief Screen

	Positive Complicated Grief Screen			
	No (BCGQ <4) (n=236)[a]	**Yes (BCGQ ≥ 4) (n=37)[a]**	**Between-Group Difference (95% CI)**	***P* value**
SF-36 MCS	48.95 (0.78)	44.93 (2.02)	4.02 (−0.23, 8.26)	.06
HRS-D	9.48 (0.49)	12.14 (1.28)	−2.66 (−5.36, 0.03)	.05
SF-36 PCS	43.26 (0.64)	41.61 (1.66)	1.65 (−1.84, 5.14)	.35
DASI	24.70 (0.76)	19.42 (1.98)	5.28 (1.11, 9.45)	.01

Abbreviations: SF-36 MCS, Medical Outcomes Study Short Form Mental Component Scale; SF-36 PCS, Medical Outcomes Study Short Form Physical Component Scale; HRS-D, Hamilton Rating Scale for Depression; DASI, Duke Activity Status Index

[a]Data are reported as M (SE)