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Symptoms of Post-Traumatic Stress Disorder after Coronary Artery Bypass Surgery in Women

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Abstract

Post-Traumatic Stress Disorder (PTSD) symptomatology can complicate physical recovery from illness and surgery after Coronary Artery Bypass Surgery (CABG). Especially women's more challenging recoveries from CABG could not be explained solely by the seriousness of their illness or level of physical condition.

Keywords: Psychological outcomes after CABG; Women artery disease

Introduction

Post-Traumatic Stress Disorder (PTSD) symptomatology can complicate physical recovery from illness and surgery after Coronary Artery Bypass Surgery (CABG). Especially women's more challenging recoveries from CABG could not be explained solely by the seriousness of their illness or level of physical condition. In the case of a patient who is exhibiting symptomatology outside of symptoms consistent only with depression or anxiety, it is important to consider the possibility of traumatic stress reactions, or comorbid traumatic stress and depression. The psychological profile in women but also the exploration of recent adversity is necessary. Numerous studies have demonstrated the link between depressive symptoms and recovery from coronary artery bypass grafting surgery (CABG), and how depression complicates physical recovery. The estimate of patients suffering post-operative depression is in the range of 30%- 40% of all CABG patients, with significant levels of anxiety also present in this population [1]. Additionally, most patients have demonstrated to have some level of anxiety and/or depression post-surgery. Although most patients' symptoms resolved satisfactorily within 6 months, 28% of patients struggled with levels of depression that either remained constant or worsened in that time period [2]. Because both depression and anxiety are associated with poorer recovery and long-term outcomes, understanding their relationship, and finding effective interventions can impact the outcome trajectory of cardiac patients. Unfortunately, the mechanisms by which psychological symptoms are correlated with physiological outcomes are not clearly understood1, and as a result there is not a clearly delineated or consistently applied method of diagnosing and treating patients at risk for longer-term adverse effects.

Two potential outcomes that have not received as much attention as depression in the literature are those of Post -Traumatic Stress Disorder (PTSD) or Acute Stress Disorder (ASD), which are primarily differentiated from each other by duration: ASD is considered to be a short-term condition experienced directly after the traumatic event. Symptoms are grouped in clusters, and some clusters, such as that of negative mood symptoms can appear to be those of depression [3,4]. One study reported that a significant number of patients in their sample met diagnostic criteria for PTSD one month after myocardial infarction (MI) and that this number was higher among women5. The circumstances of MI are different than those of CABG, in that MI represents the type of sudden, traumatic, and life-threatening event necessary for a diagnosis of PTSD [5], as opposed to a planned surgery. Under some circumstances such sudden medical events can lead to traumatic stress [4,6]. Panagopoulou [7] reported findings that

pre-operative stress alone might lead to symptoms of traumatic stress, albeit not at diagnostic levels for either PTSD or ASD. Similarly, Doerfler [8] found notable (although not statistically significant) levels of PTSD symptomatology above the diagnostic threshold in a small sample of MI/CABG patients. Thus, in the case of a patient who is exhibiting symptomatology outside of those symptoms consistent with depression or anxiety, it is important to consider the possibility of traumatic stress reactions, or comorbid traumatic stress and depression.

Personality and Coping Style

Consistent with the findings that a personality high in neuroticism may experience more negative psychological impact after CABG, studies have also found that some factors predict better outcomes, both in terms of physical and psychological recovery. Both optimism and positive expectations contributed to less pain and fewer distressing physical symptoms, which might contribute to a smoother recovery [9]. These findings seem to be consistent with elements of a theory of postoperative fatigue developed by Salmon and Hall [10], which suggested that rather than defining postoperative fatigue in purely physiological terms, it would be more accurate to conceptualize this fatigue - which has an impact on rate of recovery - as reflecting psychological dimensions as well. In this view, not only is treatment for post-op depression and anxiety essential, but also the management of the pre-op expectations of patients can reduce the period of recovery. Although the exact mechanisms may not be fully explored, it is suggestive that having an optimistic personality and positive outlook, perhaps enhanced by pre-operative education to support realistic perceptions about the recovery process and aid in problem-solving [11], can lead to a convalescence that is characterized by appropriate levels of activity rather than depression, anxiety, and prolonged fatigue. Other personal factors that have been shown to influence successful recovery are the perception of personal control, with low levels of perceived personal control predicting slower recovery [11,12] and maladaptive coping style associated with higher levels of PTSD after MI [13]. In the latter study- which was examining MI rather than CABG but may hold implications for patients after CABG - older adults who used maladaptive coping strategies such as suppression and mental disengagement were much more likely to meet the full diagnostic threshold for PTSD. This finding is consistent with the DSM-5 risk factors for traumatic stress, which will be discussed in the below section.

Environmental Protective Factors

One area of significant environmental impact on outcomes for patients after CAGB is tied to their ability to engage in adaptive coping behaviours, that of level of external support. In review of studies [11] examining quality of life after CABG, social support by a spouse predicted lower levels of depression and anxiety. Various other types of support (including financial assistance, emotional closeness, and belonging to a group) were examined, the feeling of being cared for and respected by others had the most beneficial effects on emotional recovery.

Risk factors for poor emotional adjustment

Pre-operative anxiety and depression have been demonstrated to predict post-operative anxiety and depression [14]. According to the DSM V [3], risk factors for Major Depressive Disorder (MDD) include a “neurotic personality/negative affect, a history of depression, first-degree relatives who have experienced major depression, and a history of adverse events in childhood” (p. 166). Neuroticism is also a significant predictor of anxiety, as is related to behavioural inhibition and harm avoidance [3]. As for either Acute Stress Disorder (ASD) or Posttraumatic Stress Disorder (PTSD), neuroticism once again emerges as a significant risk factor for negative traumatic stress-related psychological outcomes after surgery, as does an avoidant coping style [3]. In related findings [15], causal attribution - or the reason the patient believed they became ill -was a significant predictor of depressive symptoms after CABG, with patients blaming themselves (personality attribution), stress, and a belief that the illness was "destined" suffering from more depressive symptoms.

Impact of emotional adjustment on physical recovery

Ultimately, aside from the added distress that emotional suffering can add to the pain and physical distress of recovering from major surgery, disorders such as Major Depressive Disorder, Generalized Anxiety Disorder, or Posttraumatic Stress Disorder - as well as subclinical levels of depression, anxiety, and traumatic stress - can complicate physical recovery from illness and surgery. For example, patients with higher levels of depressive symptomatology were found to have more difficult recoveries based on assessments of wound healing, levels of infection, levels of appetite and energy, and ability to contribute to self-care [16]. They were also found by the same study to be able to walk shorter distances both at the time of discharge, and at 6 weeks post-op than non-depressed counterparts [16]. Further, in a review [1] of depression and anxiety and their impact on cardiac outcomes, findings showed that depressed patients were less willing/able to participate in cardiac rehabilitation after surgery and suggested that this could lead to poorer long-term cardiac outcomes. Similarly, Connemey [17] found that CABG patients meeting the criteria for MDD after surgery had a significantly greater likelihood of experiencing another cardiac emergency within a year (such as MI, cardiac arrest, and repeat CABG), and that they were more than twice as likely to enter the hospital or die during the year following surgery than non-depressed cardiac patients in

the sample. Some of the reasons suggested for this included their lower participation in rehabilitative care, their lower rates of medication uptake, and less willingness to modify their lifestyles [16,17]. In terms of traumatic stress, especially when it is combined with depression, the outlook for long-term recovery is similarly bleak. Dao [18] discovered that comorbid depression and PTSD significantly increased the mortality rate for patients after CABG, with the comorbid depression and PTSD having mortality rates 4 times higher than those CABG patients who did not suffer from these disorders. Interestingly, this study suggested that other physiological factors associated with depression and/or PTSD, such as altered activity in the autonomic nervous system or increased resting heart rate, might be associated with the higher levels of mortality. These findings, especially when taken together with findings that suggest that behavioural factors also may play a part in higher mortality rates for patients suffering from depression and PTSD, lead to a complex picture whereby - once again - it seems obvious that identified patients are vitally in need of intervention, but there is no clear mode of intervention that will necessarily provide for every eventuality.

Gender differences

Virtually every study reviewed here used gender as a unit of analysis when examining the prevalence of depressive symptomatology in patients undergoing CABG. The outcomes associated with depression and/or traumatic stress in these patients, and the recovery trajectory experienced by all patients studied, including those with depression/anxiety/traumatic stress, and those without. The study by Connerney [17] not only found greater levels of additional cardiac events and/or mortality in patients meeting the diagnostic criteria for major depressive disorder, but also found that female gender was one of the predictive factors for future cardiac events and had higher levels of post-operative morbidity and mortality overall. While this study looked at women's recovery over the period of a year post-CABG, Vaccarino [19] examined a sample both prior to surgery and again between 6-8 weeks after surgery and found that not only did women report more depressive symptoms prior to surgery, but they had higher rates of readmission after surgery, had increased depressive symptomatology, and lower physical functioning post-op when compared to men. Overall, this study found that women's more challenging recoveries from CABG could not be explained solely by the seriousness of their illness or level of physical condition. In general, higher levels of pre-operative depression have consistently been found in women [1-12]. Women are not only more depressed both before and after surgery, but they are more likely to make causal attributions for their illness that are associated with depression [15], and women are more likely to be unpartnered, which is itself associated with higher rates of depression [2]. McKenzie [14] conducted a review of studies that examined pre-CABG predictors of post-CABG depression and/or anxiety and reported mixed results with regards to gender. They suggested that the greater willingness of women to self-report depression might lead to skewed results in studies using this method of determining depression. Similarly, Dao [18] did not report significant differences in their study of mortality associated with depression and PTSD. Whether or not individual studies vary in their findings due to reporting differences, as mentioned above, it appears from the literature, when taken as a whole, that women who have undergone CABG are at some level of greater risk of poorer outcomes as associated with depression and anxiety. In 2018 a study [20] investigated the differences in disease experience and mood between patients undergoing cardiac rehabilitation after CABG or after valve replacement (VR). Scores in the psychosomatic concern scale were more frequent in CABG than in VR patients. Anxiety and depression scores did not differ between the two groups – no differences in gender were reported. Results suggested providing psychological support for anxiety and depression to both VR and CABG patients during cardiac rehabilitation. Planning differentiated interventions of cardiac rehabilitation and secondary prevention tailored to the specific psychological reactions of CABG and VR patients could be the solution.

Conclusions

There are a number of factors associated with psychological outcomes after CABG that were not mentioned here (or only briefly mentioned). There is not a great deal of literature that addresses PTSD in conjunction with CABG, but there is no doubt that the potential impact of this diagnosis on long-term recovery is significant. The psychological profile in women but also the exploration of recent adversity is necessary [21]. To illustrate, a history of adverse childhood events coupled with neurotic/negative affectivity and avoidant coping style would suggest that the recovery, both physically and psychologically, could be difficult. On the other hand, the demonstration of high levels of self-efficacy (a usual characteristic in women's functioning) may explain why the perceived loss of control over health and medical decisions have such a strong negative impact on emotional adjustment post-surgery. An intervention that draws upon the patient's own strength and social support, magnifies the chance of a positive outcome in recovery.

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