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Collaborative Care Interventions in General Trauma Patients

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SYNOPSIS

Collaborative care is a disease management strategy that aims to simultaneously target medical/surgical (e.g., physical injury) and psychiatric (e.g., PTSD and depression) conditions. Collaborative care interventions hold promise for the delivery of mental health interventions in acute care as they can incorporate front-line trauma center providers such as social workers and nurses into early mental health services delivery and can link trauma center care to outpatient services. Initial randomized clinical trial evidence suggests that collaborative care interventions that incorporate evidence-based motivational interviewing targeting alcohol use, as well as pharmacotherapy and psychotherapy targeting PTSD, may reduce both alcohol and PTSD symptoms among injured trauma surgery patients. Trials conducted to date thus suggest that early mental health interventions can be feasibly and effectively delivered from trauma centers. Future collaborative care investigations that refine routine acute care treatment procedures and target acute care policy mandates can improve the quality of mental health care for Americans injured in the wake of individual and mass trauma.

Keywords

Collaborative Care; PTSD; Trauma Center; Alcohol

INTRODUCTION

Every year, approximately 37 million individuals visit American emergency departments due to a traumatic injury². Motor vehicle accidents, violent physical trauma, as well as other natural or man-made disasters are among the many leading causes of patients visiting acute care medical centers. Of those entering acute care hospital facilities, 2.5 million have sustained injuries severe enough to require inpatient treatment.^{2,24,33}

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Physical injury as the result of a traumatic event increases the risk for experiencing psychiatric symptoms, including depression and post-traumatic stress disorder (PTSD), as well as other psychosomatic symptoms, or those without any known medical cause.^{6,8,10,11,18,13,20,22,43,48,51,52,54,49} In analysis of data from the National Study on the Costs and Outcomes of Trauma (NSCOT), the largest study to date assessing functional and work outcomes after an injury, researchers found that 23 percent of injury survivors were continuing to experience PTSD symptoms a year post-injury.⁵⁵ In addition, research indicates between 20–50% of trauma patients on surgical wards fit criteria for current or long term substance abuse.^{21,40}

An estimated ten to forty percent of patients presenting to acute medical centers after a physical injury develop symptoms associated with PTSD.^{13,22,42,52,58,51} In a 2007 study, Wong, et al., worked with facial trauma survivors to assess acute care needs and psychiatric symptoms post-injury. Through psychiatric assessments, 34% of study participants showed symptoms of PTSD, and 35% of participants expressed symptoms of depression. Similar to other trauma survivors, while these patients expressed interest in treatment for their symptoms, they were unsure where to find treatment, and no patient actually sought out mental health treatment after leaving the acute care facility.⁴⁷

Delivering mental health care as part of trauma care systems

Survivors of mass trauma, including those injured during the September 11, 2001, terrorist attacks, are at an increased risk for developing psychiatric symptoms after an injury. Guidelines now suggest mental health screenings for incoming patients to acute care facilities from a mass trauma or natural disaster.²⁸ Other identified risk factors for development of PTSD include prior PTSD trauma with related symptoms, female gender, higher initial heart rate at emergency department arrival, and initial distress after injury.^{3,13,22,26,27,30,46,54,57}

Within trauma care systems, patients often receive aftercare that is fragmented between the hospital, follow-up clinics and their primary care providers, with few to no services offered onsite to bridge this gap.^{14,37,48} Patients see several providers in a variety of contexts: hospital aftercare, rehabilitation, mental health services, and primary care medicine without a connecting source. Also, many patients leave the emergency department or inpatient ward without an established or referred primary care provider, compounding the disconnect between physical and mental health care.^{49,59}

The Institute of Medicine (IOM) has developed quality-of-care criteria designed to assist in assessment and intervention of trauma patients. All patient after-care should be based on evidence-based practices. In addition to evidence-based practice, health care centers should ensure that care is both equal but client-centered. Patients entering trauma centers come from a heterogeneous population of varying backgrounds, ethnicities, and socioeconomic statuses. The IOM report suggests that patients should receive the same quality of care while still receiving resources that will meet their specific needs. Patients' needs, values and opinions should be considered when making medical decisions. Patient care should also be continuous, extending to after discharge during follow-up appointments at clinics and rehabilitation centers. The center of care becomes based on a relationship between the provider(s) and patients. Lastly, the IOM emphasizes the need for collaborative care among health care centers and providers when actively sharing information and plans for aftercare.⁴

However, with current standards of practice at acute care facilities, few patients receive mental health evaluations or treatment, even though more than fifty percent of trauma survivors experience high levels of emotional distress associated with PTSD, depression,

and substance use disorders and experience symptoms while on the ward.⁵¹ Patients rarely seek out mental health services on their own after hospital discharge.^{5,16,25,1} Therefore, although there are many evidence-based interventions available for patients with PTSD symptoms, these are rarely practiced with trauma patients post-injury.

Lastly, even with existing trauma interventions in acute care centers, previous studies have experienced difficulty keeping many patients engaged following discharge from the hospital.^{15,31,36,39,45} Commonly expressed patient concerns at the time of hospital discharge include physical, financial, and social concerns and these can interrupt the focus on post-injury psychiatric care.⁵³ Intervention protocols that assist patients in addressing these concerns appear to allow patients to focus more on any needed psychiatric treatment.^{53,51}

PTSD and Functional Impairment after Injury

A number of studies have shown that PTSD limits independent functioning and quality of life after a physical injury further than physical limitations alone.^{9,12,26,52} Zatzick and colleagues recently completed analyses of the National Study on Costs and Outcomes of Trauma, where the associations between PTSD and functional impairment were examined. Functional outcomes assessed were activities of daily living, health status, and return to major activities, including work. Previously employed patients showing symptoms of either PTSD or depression had a 3-fold increase in odds of not returning to work post-injury. Patients experiencing symptoms of both PTSD and depression had 5–6 odds increase in not returning to work after their injury when compared to previously employed patients not experiencing any PTSD or depressive symptoms.

Ramchand et al., found that both physical functioning and PTSD symptoms can have a negative impact on each other in the months following injury. Patients with more severe physical injury expressed greater psychological distress in the months following injury. Likewise, patients with higher levels of PTSD-related symptoms immediately following their injury subsequently experienced more functional impairment.³²

Developing Collaborative Interventions in General Surgical Settings

As discussed in the introduction, injured patients within acute care facilities are at high risk for developing PTSD and alcohol use disorders. As is true for many Americans with psychiatric disorders, many patients suffering from PTSD and other psychiatric disorders receive fragmented care post-injury and are not engaged in mental health services at strategic post-trauma points.^{38,29}

Previous research has emphasized the important role that collaborative care plays in patients with continuous and co-morbid conditions and integrating patient input on follow-up care and treatment for these conditions.^{19,44} Studies have shown efficacy using these collaborative care interventions on patients with depression and anxiety.^{17,19,35,41}

Just as collaborative care interventions have incorporated primary care providers into the provision of mental health services, the introduction of early collaborative care interventions within trauma care systems may serve to integrate acute care providers into posttraumatic mental health care delivery. Using randomized effectiveness designs rooted in the structure, process, and outcome model of intervention delivery, mental health services researchers have demonstrated that combined, collaborative care interventions can improve symptomatic outcomes for patients with depressive and anxiety disorders who are treated in

¹Wong, E.C., Schell, T.L., Marshall, G.N., Jaycox, L.H., Hambarsoomians, K., & Belzberg, H. (2009). Mental health service utilization after physical trauma: The importance of physician referral. *Medical Care*, 47, 1077-1083.

primary care. Collaborative care interventions in primary care settings have sought to find the optimal roles for primary care physicians, nurse practitioners, and mental health specialists in the delivery of care for patients with psychiatric disorders and chronic conditions. Collaborative care interventions hold promise for the delivery of mental health interventions in acute care as they can incorporate front-line trauma center providers such as social workers and nurses into early mental health services delivery and can link trauma center care to outpatient services.

For patients with both mental health concerns, as well as other ongoing medical conditions, the collaborative care model seeks to provide the best care possible from all participating providers, incorporating the expertise from these providers in issues relating to their specific field. Providers and the patient should work in conjunction on developing post-injury treatment planning and goals, identifying and providing ideal medical treatment that corresponds with patient needs, as well as care for PTSD symptoms, including evidence-based cognitive-behavioral therapy treatment and psychopharmacological methods.

Another key issue in the collaborative care model is maintenance of the long-term relationship with the patient. This usually falls to the mental health providers, whom are continuously working with the patients on PTSD symptoms, possible alcohol or substance abuse, and other post-injury life stressors, as well as working with the patient and other providers to maintain continuity of care. The team works with the patient on understanding the importance of many post-injury decisions, especially regarding treatment, and works with the patient to develop the best plan of action.

In their study on facial trauma patients, Wong, et al., found numerous patient-perceived obstacles to receiving post-injury mental health treatment, including lack of knowledge concerning where to find services, cost of treatment, and other practical matters, including lack of transportation. The study results suggest that collaborative care efforts, which are individualized to a patient's specific needs, may assist in overcoming many of these obstacles (including monetary, legal, and other concerns) while also providing the patient with mental health treatment. The collaborative care model not only allows patients to receive mental health treatment but also can provide resources that assist in addressing other patient concerns including legal and financial issues.⁴⁷

Many previous studies show that a large number of patients experiencing PTSD symptoms report a decrease in symptoms in the year following their injury.^{23,34,54} Therefore, a stepped-care approach that progresses from simpler first-line treatment to more intensive treatments would be most beneficial. The progression to more resource-intensive care could be reserved for patients that initially receive low-level or no care post-injury and do not experience a spontaneous recovery with their symptoms. Over the course of the year following their injury, patients would receive an increase in services and intervention based on their specific needs. This would also allow equitable service and care to all patients initially following an injury, despite the lack of mental health resources many acute care facilities experience.

Piloting patient-centered collaborative interventions for physically-injured trauma survivors

Collaborative care interventions for the treatment of physically-injured in general trauma settings appear promising. The rationale and design of an initial pilot study of collaborative patient-centered care was strongly influenced by the results of the Gentilello et al. intervention at Harborview. Gentilello et al. demonstrated that brief patient-centered counseling provided by a PhD-level clinician in a trauma setting can be useful in helping injured patients explore and reduce their alcohol use following the injury and also reduce the

risk of secondary injuries.⁷ The initial collaborative care pilot sought to establish the feasibility of having three trauma center providers deliver a brief early intervention that aimed to reduce PTSD symptoms.⁵⁶ One interventionist was a trauma surgery nurse practitioner with over a decade of experience as a front-line provider with the trauma surgery service; two interventionists were MD consultation liaison psychiatrists. These providers were trained in a case management procedure that aimed to engage injured trauma survivors by providing readily accessible, continuous trauma support in the days and weeks following the injury.

A key component of the trauma support intervention was eliciting and targeting for improvement, each patient's unique constellation of posttraumatic concerns. Interventionists also received training in brief interventions for PTSD and alcohol use. In accord with a population-based/effectiveness approach, patients were randomly selected to participate from the population of patients admitted to the hospital's Trauma Surgery Service. Only severely brain injured and non-English speaking patients were excluded from the investigation. Patients randomly selected for participation in the study had moderate levels of PTSD symptoms as well as substance-related comorbidity.

Patients in the intervention group, when compared to controls, manifested significantly decreased PTSD symptom levels at 1 month ($p < 0.05$) but not at 4 months after the injury.⁵⁶ Examination of the interventionists' logs revealed that patients were engaged in the early intervention and that 75% of patient-interventionist contact occurred between the hospital admission and the 1-month telephone follow-up interview. Interventionists successfully worked with other acute care providers to integrate the early intervention activities with other aspects of acute care treatment delivery (e.g., pain control, discharge planning). However, the trauma center-based interventionists frequently encountered difficulty transitioning the care of patients to the community.

Larger Scale Randomized Effectiveness Trials of Collaborative Care in General Medical Settings

Following the first pilot trial, a second, larger stepped collaborative care trial, i.e., the Harborview pilot, was implemented.⁵¹ The Harborview pilot study tested an early combined intervention that included continuous master's level case management over the first six months post-injury and evidence-based medication and psychotherapy for PTSD delivered by MD/PhD mental health specialists. As with the pilot study, inclusion criteria for the Harborview pilot remained extremely broad. Patients were screened into the study if they exhibited moderate levels of psychological distress in the surgical ward; patients with current substance use issues were also included in the study.

The goal of the 6-month care management intervention was to engage injured trauma survivors in early intervention and to link these patients to appropriate primary care and community services. The care manager began treatment by meeting the injured patient at the bedside and by eliciting, tracking, and targeting for improvement each patient's unique constellation of posttraumatic concerns. The patient and care manager worked to formulate a comprehensive post-injury care plan. To enhance engagement by encouraging spontaneous patient-initiated contact with the intervention team, the care manager pager was covered by team members 24 hours per day, 7 days a week.

The care manager aimed to ensure that injured patients were linked to appropriate outpatient primary care and community services. The procedures for collaboration with primary care providers were informed by previous trials of consultation psychiatry interventions for depressive and anxiety disorders in primary care. First, the care manager ascertained whether or not patients had a regular primary care doctor with whom they could follow-up

after discharge from the trauma center. Over the initial weeks post-injury, the care manager worked to obtain primary care services for any injured patient who did not have a regular provider. When patients had regular providers, these practitioners were contacted by telephone to discuss the post-injury care plan. If necessary, the care manager helped patients schedule primary care visits and provided reminders of scheduled appointments in order to facilitate attendance at office visits. Patients who expressed interest in linkage to other community services (e.g., low fee legal clinics, pastoral care services) received assistance with these requests as well. In the later months of the care management intervention (e.g., months 3–6), primary care providers were again contacted by telephone by intervention team members to summarize post-injury care and ensure adequate care transfer. For patients started on psychotropic medication, primary care providers were also sent a letter notifying them of the current doses and making recommendations for ongoing prescription and side-effect management. Patients with symptomatic recurrences received stepped-up evidence-based care and/or extension of the care manager through the 6–12 months post-injury time period.

At 3 months after the injury, the care manager evaluated each intervention patient for PTSD with the Structured Clinical Interview for Diagnostic and Statistical Manual (DSM). Patients diagnosed with PTSD were referred to the team's MD/PhD providers for the initiation of evidence-based medication and psychotherapy treatment. Team members shared information and deliberated with patients concerning the importance of receiving guideline-level treatments for PTSD symptoms. All patients were given their choice regarding treatment options and patients could receive either or both medications and cognitive-behavioral therapy. The investigation's cognitive behavioral (CBT) therapist delivered an evidence-based protocol that derived from prior PTSD efficacy studies. The investigation's psychiatrist performed an initial medication evaluation and initiated guideline concordant pharmacological treatment. For those electing pharmacotherapy, the psychiatrist would stabilize each patient on an initial course of pharmacotherapy. The psychiatrist would then work with each patient's primary care and community mental health providers to ensure that guideline level treatment was continued beyond the active study intervention phase.

The master's level care manager had received prior training in the delivery of motivational interviewing interventions. As with the previous motivational interviewing intervention, an initial 30-minute motivational interviewing intervention was delivered in the surgical ward to patients with current or past histories of alcohol abuse/dependence; motivational interviewing booster sessions were delivered on an as-needed basis to patients with ongoing alcohol abuse and/or drinking behaviors that place them at risk for new injury. For receptive patients, the care manager linked patients to community alcohol services [e.g., Alcoholics Anonymous (AA)].

Review of intervention logs revealed that the care manager procedure effectively engaged 90% of intervention patients. Approximately 50% of intervention patients reported no regular source of primary care services at the time of the surgical ward interview; over 60% of these patients required that their care be coordinated for follow-up with a primary care provider or other community provider. Successful trauma center-primary care provider linkage by the care manager often required multiple attempts over the months post-injury.

The pilot intervention appeared successful. Regression analyses revealed a significant treatment group-by-time interaction effect for PTSD. The intervention effect coincided with the initiation of evidence-based medication and psychotherapy interventions for PTSD at the 3-month time point. Post-hoc analyses revealed that the significant treatment group-by-time interaction was due to treatment group differences in the adjusted rates of change in PTSD over the 12-months post-injury ($p = .02$).⁵⁰

Future Directions

The American College of Surgeons now requires that level I trauma centers must have on-site alcohol screening and brief intervention services as a requisite for trauma center accreditation.¹ This policy mandate derives from a series of acute care screening and intervention studies documenting improved outcomes for patients receiving clinical interventions targeting post-injury alcohol consumption. Additionally, the latest version of the American College of Surgeons publication, "Resources for the Optimal Care of the Injured Patient" manual, has recommended PTSD assessments.¹ Thus, future efforts to refine acute trauma care screening and intervention procedures using collaborative care models have the potential to improve the quality of care provided to injured survivors of individual and mass trauma.

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