Behavioral Health in Surgical Settings

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Learning Objectives

At the conclusion of this session, the participant will be able to:

• Identify ways in which behavioral health affects surgical patients
• Review benefits of pre- and post-operative management of behavioral concerns
• Describe the potential roles behavioral health practitioners may play in the care of surgical patients
The Stereotypical Surgeon

- Cold
- Egotistical
- Short-tempered
- Moves at a rapid pace
- Fixes things
- Pays little attention to emotional issues
- Doesn’t care/doesn’t have time for behavioral or psychiatric issues

Source: Boris Veysman. British Medical Journal 2005;331:1529
Cases to Consider
Case One

- A 25 year-old police officer shot in chest during training exercise. Undergoes chest operation for massive bleeding and does well, walks out of the hospital 5 days later.

- Heals well without physical disability
- Severe PTSD, unable to work in law enforcement, disability
- Alcoholism, substance abuse, depression
- Divorce
Case Two

- 65 year-old man with depression and colon cancer undergoes a routine colon resection for a cancerous polyp.
- Post-operative pain control issues and won’t participate in physical/occupational therapy, does not breathe deep or cough
- Respiratory failure, pneumonia, tracheostomy
- 24 day length of stay
- 3 readmissions within 9 months (pneumonia, GI bleed, fall)
- Dies 10 months post-op
Case Three

• A 19 year old man is shot in the abdomen and left arm. Sustains a left humerus fracture and no major intraabdominal injuries

• Does not cooperate with police; anger issues in hospital
• Elopes from hospital
• Suspected in shooting in following weeks
• Dies in shootout with police attempting to arrest him
• One police officer injured
Theoretical Foundation
Biopsychosocial-Spiritual Model

• Biopsychosocial model – George Engel (Mayo Clinic psychiatrist), 1977
• Spiritual aspect added later
• Theory of health
  • Bio – pathophysiological processes of health
  • Psycho – psychological, mental, and behavioral issues contributing to health and how health is experienced
  • Social – societal, family, cultural influences on health
  • Spiritual – religion/spirituality influencing views of health and disease

(Engel, 1977)
Health Affects Behavior

- Chronic medical problems are associated with higher rates of depression
- Increased duration of illness correlates with increased rates of depression
- Substance abuse frequently co-occurs with chronic illness

(Simon, 2002)
Behavior Affects Health

- Stress
- Drug use
- Alcohol use
- Smoking
- Diet
- Exercise
- Compliance
- Preventative medicine

“IOM, 2001”
Behavior Affects Health

Proportional Contribution to Premature Death

- Genetic predisposition: 30%
- Behavioral patterns: 40%
- Social circumstances: 15%
- Environmental exposure: 5%
- Health care: 10%

Figure 2. Numbers of U.S. Deaths from Behavioral Causes, 2000.
Among the deaths from smoking, the horizontal bar indicates the approximately 200,000 people who had mental illness or a problem with substance abuse. Adapted from Mokdad et al.\textsuperscript{[12]}

(Schroeder, 2007)
Behaviors Impact Need for Surgery

• Behavior leads to surgical indication
  • Traumatic injury
  • Lung cancer, cardiovascular disease
  • Morbid obesity
  • Medication non-compliance

• Behavior may affect outcome post-operatively
  • Wound healing
  • Length of stay
  • Pain control

(Gouin & Kiecolt-Glaser, 2011)
Family/Social Influences on Health

- Social support for recovery
- Married individuals have less morbidity and mortality from cancer, heart attacks, and following surgeries
- Family/relationship stress slows healing
- Cultural influence

(Kiecolt-Glaser et al., 2005)
Spirituality and Health

- Provides coping mechanism
- Provides social support
- Meditation and relaxation
- Provides hope for the future

(Contrada et al., 2004)
Rethinking Care

• Stigma of mental illness
• Incorrect beliefs/assumptions re: behavioral health by medical professionals
  • Patients with a mental illness diagnosis are not the only ones who would benefit from behavioral health consultation
• It’s “normal” to have:
  • Dysfunctional thought patterns
  • Dysfunctional behaviors
  • Dysfunctional relationships
Rethinking Care

• Surgery/Trauma is not a “normal” experience
  • Grief
  • Pain
  • Depression/Anxiety
  • PTSD
  • Psychosocial distress

• Interventions post-surgery/trauma may help improve coping and possibly circumvent maladaptive behavior

• Can help patients understand when actions/thoughts/behaviors become maladaptive and worrisome
Integration is More Than a Psych Referral

• Integration provides tools to patients to aid in:
  • Adaptation
  • Insight
  • Problem-solving
  • Coping
  • Resolving conflicts
  • Expectations
Application to Surgery
Depression Affects Inflammatory Response

- IL-1β, IL-6, TNF-α – important markers for inflammation and mediators of local and systemic inflammatory responses
- Correlation between major depressive disorder and high levels of circulating inflammatory mediators
- Inflammation can increase the occurrence of major depressive episodes in animal models
- IL-6 and TNF-α significantly decrease when treated with an anti-depressant
- Despite high levels of systemic inflammation, the local inflammatory response is impaired in depressed individuals

(Soledad Cepada, Stang, & Makadia, 2016)
Behavior Affects Biology

• 16 sessions of psychotherapy
• Significant decrease in depressive symptoms
• Significant decrease in serum IL-6 and TNF-α

(Del Grande da Silva et al., 2016)
Stress Affects Wound Healing

- 13 volunteers who care for a family member with Alzheimer’s vs 13 age-matched healthy volunteers as control

- 3.5 mm punch biopsy of the skin

- Control group healed 9 days faster than did the caregivers

- WBC from control group produced more IL-1

(Kiecolt-Glaser, Marucha, Malarkey, Mercado, & Glaser, 1999)
Depression Affects Wound Healing

- 183 healthy volunteers at UCLA
- Beck Depression Inventory
- 3.5 mm wound hard palate
- High depression score predicted slow wound healing

(Bosch, Engeland, Cacioppo, & Marucha, 2007)
Stress and Surgery

• 47 adults undergoing open inguinal hernia repair
• Preoperative questionnaire about stress and worry about the operation
• 30 volunteers had fluid aspirated from wound following surgery

• High perceived stress → lower IL-1 in wound aspirates
• Higher worry
  • Higher pain
  • Slower recovery
  • Worse overall recovery

(Broadbent, Petrie, Alley, & Booth, 2003)
Behavioral Health Affects Wound Healing

• Blisters of women with high stress had lower levels of inflammatory mediators
• Punch biopsies in men showed that fast healers had high optimism
• Burn victims with higher stress scores healed more slowly
• Patients with concurrent diabetes and depression were twice as likely to have a diabetic foot ulcer

(Christian, Graham, Padgett, Glaser, & Kiecolt-Glaser, 2006; Kiecolt-Glaser et al., 2005)
Relationships Affect Wound Healing

• Physically healthy couples with high hostility healed at 60% of the rate of couples with low hostility
• Local IL-6, TNF-α and IL-1β lower following marital conflicts
• High hostility couples produced larger increases in plasma IL-6 and TNF-α following conflict

(Kiecolt-Glaser et al., 2005)
Behavioral Health in Various Surgical Populations
Bariatric Surgery

• Preoperative evaluation of mental health is the standard of care
  • 2/3 surgery applicants have lifetime history of psychiatric disorder
  • 65-70% receive recommendation to proceed with surgery
• Reasons for denying or delaying surgery:
  • Significant psychopathology (bipolar, psychosis)
  • Untreated/undertreated depression
  • Lack of understanding of surgery and post-operative expectations
  • Active substance abuse
  • Eating disorder
  • Severe personality disorder
  • Psychosocial factors

(Walfish, Vance, & Fabricatore, 2007)
Bariatric Surgery

• Number of pre-surgery psychiatric hospitalizations
  • increased in complication
  • increased distress
  • decreased satisfaction

• Binge eating behaviors predict poorer weight loss and long-term outcomes

• Higher divorce rate in 3 years following bariatric surgery

(Beaulac & Sandre, 2015; Gade et al., 2015; Himes et al., 2015)
Bariatric Surgery

• Pre-op CBT
  • Assess goals and understanding of the procedure
  • Weight/dieting history
  • Binge eating and psychopathology
  • Assess family/relationship factors
  • Recommend less invasive options

• Post-operative CBT
  • Improves psychological distress
  • Decreased perceived life difficulty and depressive symptoms
  • Improved weight-related adjustment
  • Less emotional overeating and relationship anxiety

• Long-term Adjustment
  • Prevent re-gain
  • Maintain healthy behaviors

(Beaulac & Sandre, 2015; Gade et al., 2015; Himes et al., 2015)
Trauma

• Study of patients with facial trauma

• Poor outcomes associated with:
  • Hospital days
  • ICU days
  • Surgical procedures
  • Major complications
  • Age
  • Recurrent injury
  • Inadequate information

• 1/3 of patients reported depression

• 1/3 of patients reported PTSD

• *Zero patients sought mental health follow up for PTSD/Depression*

(Sluys, Haggmark, & Iselius, 2005)
Trauma

- Mental health outcome directly influences:
  - General health
  - Work status
  - Satisfaction with recovery
- No patient returned to baseline by 12 months

(Michaels et al., 2000)
Trauma

• Pain intensity related to:
  • Catastrophizing
  • Depressive symptoms

• Depressive symptoms associated with poor physical health and pain interference with activity

• Higher pain predictive of eventual disability

• High fear of movement was not associated with disability

(Archer, Abraham, & Obremeskey, 2015)

Both responsive to CBT

On a scale of 1 to stepping on a lego, how much pain are you in?
Cardiac Surgery

Relation of depression, natural killer cell function, and infections after coronary artery bypass in women

Lynn V. Doering, Otoniel Martinez-Maza, Donna L. Vredevoe, Marie J. Cowan

• 67 women post CABG
• Patients with major depression:
  • Had lower NK cell cytotoxicity (NKCC)
  • Had higher rate of infectious illness in 6 months following surgery
• Depressed patients:
  • Higher rate of post-op fever
  • Higher infectious illness rate
• CBT moderate to large effects
  • Improved NKCC
  • Decreased IL-6
  • Decreased CRP
  • Decreased infectious illness

(Doering, Cross, Vredevoe, Martinez-Maza, & Cowan, 2007; Doering, Martinez-Maza, Vredevoe, & Cowan, 2008)
Cardiac Surgery

- Patients with depression
  - Risk factor for delirium
  - Predictor of participation/completion of cardiac rehab
  - Twice as likely to have a cardiac event at 1 year
  - Increased risk of cardiac mortality
  - Increased unplanned readmissions
  - Poorer quality of life
  - Higher rate of arrhythmia and angina at 5 years

- Preoperative anxiety
  - Greater all-cause mortality with CABG
  - Greater rate of post-op atrial fibrillation
  - Increased risk of in-hospital stroke, MI and renal failure

(Tully & Baker, 2012)
Spine Surgery

Preoperative Cognitive-Behavioral Patient Education Versus Standard Care for Lumbar Spinal Fusion Patients: Economic Evaluation Alongside a Randomized Controlled Trial

• 90 patients
• Significantly improved quality-adjusted life years
• Significantly larger disability reductions (3 & 6 months, not 1 year)
• No difference in cost

(Archer et al., 2016; Rolving et al., 2016)

Cognitive-Behavioral–Based Physical Therapy for Patients With Chronic Pain Undergoing Lumbar Spine Surgery: A Randomized Controlled Trial

• 86 patients
• Significant decreases
  • Back and leg pain
  • Disability
• Significant improvement
  • General health
  • Mental health
  • Faster improvement in PT exercises
Behavioral Interventions
Potential Interventions

• Pain and symptom management
• Motivational interviewing
  • PT/OT participation
  • Compliance with treatment
• Treating pre-existing depression/anxiety
• Preventing PTSD, adjustment disorders, depression
• Improving family interactions and support
• Preparing for discharge
Cognitive Behavioral Therapy

- Effective in management of chronic low back pain
- Adjunctive treatment in fibromyalgia
- Early CBT can prevent post-partum depression in high-risk mothers
- Can prevent PTSD in patients at high risk following a trauma

(Cho, Kwon, & Lee, 2008; Thys, Coulter, & Hudson, 2016; Vinci, Coffey, & Norquist, 2015)
Mindfulness

- Inflammatory bowel disease
  - Mindfulness vs. control
  - Significant improvement in depression, anxiety, quality of life
  - Maintained improvements for at least 6 months

- Ulcerative Colitis
  - Lower stress levels during flares
  - Prevented drops in QOL during flares
  - No overall reduction in flare frequency
  - Reduction in frequency in high-stress individuals

(Schoultz, Atherton, & Watson, 2015)
Benefits to Patients

- Reduced postoperative pain
- Decreased length of stay
- Improved functional recovery
- Increased communication
- Improved follow-up
- Increased patient satisfaction
- Improves quality of care

(DiGiola, Greenhouse, & Levison, 2007; Petrie & Zatzick, 2010; Rollman & Belnap, 2011)
Other Borst Collaborations

Eloise  Greta  Simon
Questions/Comments
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References


References


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