Bio-psycho-social Model of Pain: A Shifting Philosophy

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A Shifting Philosophy?
Not a new idea...
Just an idea whose time has come- guess why...

• The biopsychosocial model and the overwhelming amount of accumulating evidence that psychosocial variables often trump biological disease in predicting outcome – especially pain
• The new reimbursement “opportunities” with the focus shifted to Outcomes
• It’s not just the right thing to do
• And it’s not just about pain and addiction, although those certainly play a major role (not to mention quagmire)
We help get the rest of the story

And once we do, we can address it

- Depression, anxiety, catastrophizing, history of abuse and trauma all lead to central sensitization and all can respond to treatment
- The brain is the primary mediator of stress - both the cause of and reaction to disease. (hypothalamic-pituitary-adrenal axis, immune system, and amenable via neuroplasticity to recovery as well as prevention)
- Help the brain: help the body.
- Treatments: CBT, insight oriented psychotherapy, biofeedback assisted therapy, relaxation training, stress reduction, sleep hygiene, education and behavior modification, psychodynamic psychotherapy.
And we can help in other ways

The biopsychosocial model

according to Wikipedia

- is a general model or approach stating that biological, psychological (which entails thoughts, emotions, and behaviors), and social (socio-economical, socio-environmental, and cultural) factors, all play a significant role in human functioning in the context of disease or illness.
- It is not enough to understand and fix what is happening in the periphery nor is it sufficient to explore only what is going on in the ‘mind’/ brain.
In a nut shell...

• Pain is a multifaceted experience, including both sensory and emotional components.
• For many with persistent pain, a solely biomedical approach to treatment is insufficient, for it fails to address the psychosocial factors that drive pain and disability.
• It is often necessary to include a biopsychosocial approach that may include exercise/physical reconditioning, education (of the patient and family members), and psychological approaches such as cognitive-behavioral therapy, mindfulness/acceptance based therapies, behavior modification, and biofeedback training.

In a nut shell, continued

• Treatment of comorbid psychiatric illness is also essential to appropriately manage the patient with pain.
• Some patients require a more intensive, comprehensive interdisciplinary pain rehabilitation program (IPRP).
• These programs have been shown to be cost-effective and efficacious; however, their availability is extremely limited.
It’s in the Brain

• Pain is not what occurs at the periphery: There is no “pain generator”
• Pain what the brain perceives and it is indisputably modifiable by emotions and beliefs.
• Actual damage is neither necessary nor sufficient for the perception of pain.
• Anger, depression, anxiety, fear and other psychological variables can all increase the perception of both acute and chronic pain
• (as can believing it to be an indicator of a destructive process…)

This is gonna hurt!

• Guarding against the possibility of pain and anticipation of its occurrence activates cells in the rostroventral medulla that function to amplify incoming pain signals at the level of the DH.

• The simple act of anticipating a pain and expecting it to be important are sufficient to trigger these “on cells,” in essence activating the “amplifiers” before the pain stimulus has begun.
Bucket

- There seems to be a vicious cycle in which pain behavior, loneliness, inactivity, helplessness, depression, withdrawal, loss of reinforcers and distractions, inactivity and pain are mutually reinforcing.

- Improving one element in this series often benefits the others.

- These issues, of course, are not resolved by pharmacotherapy, but do respond to successful rehabilitation.

What they think matters as does what we tell them...

- Cognitive factors have an impact on pain in several ways.
- First, the adverse quality of pain is modified by its interpretation.
- Such “catastrophic” interpretations of pain as, “the nerves are being crushed,” or “the exercises feel like they’re tearing something loose,” impede coping.
- The situation can be worsened by health care providers who attribute the pain to incidental findings on imaging that may bear only a modest relationship to the pain.
Psychosocial variables are the best outcome predictors for... you name it

- Lifetime occurrence of any trauma leading to central sensitization
- Depression, anxiety, Axis II etc.
- Opioid dose over 76 mg morphine equivalence predicts addiction (The optimal cut point of was 76 mg MED with a sensitivity of .70 and a specificity of .68.)
- History of primary substance abuse disorder
- Greater than expected disability
- Primary, Secondary and Tertiary gain

Case

- 40 year-old, married X2- 1st marriage 2 years, 2nd 12 years, disabled construction worker with a 9th grade (X2) education (dropped out to marry his pregnant girlfriend), father of estranged 23 year-old son, 12 year-old daughter and 3 year-old son who “helps take care of Daddy” (now stay at home dad). Wife works full time in a grocery store.
- He was a Marine, served in Iraq for 1 tour, had an honorable discharge at the rank of E2 and has been diagnosed with post traumatic stress disorder for which he declined treatment
- Injured at work 15 years ago; disabled 10 years with low back pain
- Constant pain ranges from 8-10/10
- He smoked 1-2 ppd and has since he was 14
Case continued

• Diagnosis: degenerative disc disease. History of epidural steroid injections X 21; prior L4-5 disectomy, followed by instrumented L3-S1 fusion, followed by removal of hardware, stable fusion. He reports he has been told he still has “bulging discs.”

• Depressed, anxious, frustrated, irritable, passive suicidal ideation, no plan or intent but understands why people would kill themselves with his level of pain.

• Housebound, 20 hours a day resting, poor sleep

• Childhood history of neglect, alcoholic parents, younger brother died of heroin overdose age 23 and older sister to suicide age 19, sexual abuse age 12 by brother who committed suicide.

Case continued

• History poly substance abuse in early teens then again in his late 20’s

• On escalating dose of opioids X 9 years

• Now on OxyContin 120 mg tid (he has broken and crushed them in the past) and Percocet 10 mg 2-4 prn for pain (he takes 16-20 a day) and Ativan 0.5 mg tid (he takes 3-6 daily) and Ambien 7/7 nights for 10 years.

• Runs out early, multiple providers, 2 drug related motor vehicle accidents.
You can’t tell how deep a puddle is from the top...

- Is there an APP for that? No but we’re working on it

Other than individual suffering, why this matters

- Chronic non-cancer pain carries staggering individual and societal costs.
- Pain persists despite the availability of advanced procedures, surgeries and new pharmacological treatments.
- It often remains unchanged despite the expenditure of vast amounts of healthcare resources.
- *Chronic pain syndrome* is a term that refers to severe persistent pain, accompanied by significant functional impairment/disability, behavioral changes and psychological comorbidity.
So, what do you do?

- Substantiated non-pharmacological treatments include: education, exercise/physical therapy, cognitive behavioral therapy, mindfulness/acceptance based therapies, and biofeedback therapy/relaxation training.
- Best done by a team
- In a comprehensive interdisciplinary pain rehabilitation program, the whole is greater than the sum of its parts

Results

- Less pain
- Normal mood
- Normal function
- Off opioids
- Off benzodiazepines
- Sleeping
- Sustained benefits
Questions?

- Thank you!