Sex Differences in Chronic Pain

Date Created: July 11, 2016
Author: Sarah Magaziner, MD'19
Editor: Alyson J. McGregor, MD, MA

Case Overview

Chronic pain is a condition that is increasingly common in the aging population and exhibits a marked prevalence in women. However, the etiology of this condition is not well understood and its diagnosis and treatment is often reliant on subjective reports rather than objective signs and symptoms. Research shows that female accounts of pain are not taken as seriously as those of their male counterparts, and chronic pain is therefore frequently overlooked and undertreated in female patients. Additionally, while pain is often correlated with depression and anxiety across genders[1], emotional factors are more likely to be assumed to be causal in the female patient population than among males[2]. Recognizing this disparity and responding appropriately will become increasingly relevant as the population continues to age.

Patient Profile

- Name: Mrs. Y
- Age: 67
- Sex: F

Medical History

- Arthritis
- Depression

Current medications

- Sertraline
- Ibuprofen

Social History

- Works as a secretary.
- Married.
- Has two children.
- Lives with husband.

Presenting Complaint

Mrs. Y was a 67-year-old female with a history of arthritis who presented with worsening diffuse joint pain over the past two weeks, particularly in her hips and knees. She reported taking ibuprofen as needed but said that this was no longer relieving the pain. She denied trauma, fevers, and rash. She previously saw her primary care doctor for similar issues and was told her symptoms were likely due to osteoarthritis.

Assessment
On physical exam, Mrs. Y was in no acute distress. Her musculoskeletal exam revealed no joint redness, swelling, or tenderness. There was full range of motion in all joints.

Diagnosis
Arthralgia

Evaluation/Treatment
The patient was treated with opioids and instructed to follow up with her primary care doctor.

Discussion
In general, women are more likely than men to have their pain attributed to psychogenic and emotional factors by their treating physicians. There are several factors that may account for this trend, including the higher prevalence of diagnosed depression and anxiety in women[3,4]; the idea that women can and should withstand more pain due to their role in childbearing[2]; cultural norms that dictate how women should present themselves, leading to attempts to look better than they feel and fostering the "beautiful is healthy" misconception[5]; and as Vallerand suggests, the relative ease with which women verbalize their emotions as compared to men.[6] Additionally, men are less likely to verbalize their pain due to societal expectations surrounding masculinity, therefore, when they do, it is more likely to be regarded by their physicians as legitimate or urgent.[2]

However, research indicates that women are more sensitive to experimentally-induced pain, which makes it even more surprising that they are taken less seriously when they report pain symptoms.[7] Studies on painful conditions that are more prevalent in women, such as migraine, temporomandibular disorder (TMD) and arthritis reveal multiple potential sex-specific biological foundations for their occurrence, including the involvement of estrogens and the possibility that testosterone may have anti-nociceptive properties.[8,9] There have also been neurological studies that imply the existence of sex differences in the processing of pain in the cortex, as well as the pain-related activation of mu-opioid receptors in the brain which may also be moderated by gonadal hormone levels.[9,10,11] Furthermore, recent research on rodents and humans detail the influence that genotype can have on pain sensitivity even, offering further evidence that pain is not likely to be purely emotional or psychogenic and that clinical attitudes towards the female experience of pain must be re-examined.[12]

Just as the female experience of pain tends to be belittled in the medical community, so does the importance of treating accordingly, presenting a substantial barrier to satisfactory care. Several studies have revealed that doctors tend to prescribe less pain medication less frequently to female patients after surgery[13,14,15] and Calderone found that after receiving a coronary artery bypass graft women received more sedatives than their male counterparts, suggesting that their discomfort was perceived as anxiety rather than pain.[16] To complicate matters, recent research has offered insight into potential sex differences in the efficacy of

various analgesic medications and strategies, leading to confusion in how to treat chronic pain even once it is successfully diagnosed and acted upon.[17]

Therefore, while treatment may not always be straightforward, it is important to acknowledge that best practices can vary based on sex, hormonal status, genetics, gender, and age. Doing so may result in higher patient satisfaction, reduced health care costs and a greater understanding of how various conditions present differently across the sex and gender spectra.

References

1. Hecke, O. van, Torrance, N. & Smith, B. H. Chronic pain epidemiology and its clinical relevance. Br. J. Anaesth. 111, 13–18 (2013).
2. The Girl Who Cried Pain: A Bias Against Women in the Treatment of Pain by Diane E. Hoffmann, Anita J. Tarzian :: SSRN. Available at: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=383803. (Accessed: 5th June 2016)
3. WHO | Depression. WHO Available at: http://www.who.int/mediacentre/factsheets/fs369/en/. (Accessed: 5th June 2016)
4. Culbertson, F. M. Depression and gender: An international review. Am. Psychol. 52, 25–31 (1997).
5. Hadjistavropoulos, T. B. Mcmurty, K.D. Craig. Beautiful Faces in Pain: Biases and Accuracy in the Perception of Pain. Psychol. Health 11,411–20 (1996).
6. Vallerand, A. H. Gender Differences in Pain. Image J. Nurs. Sch. 27,235–237 (1995).
7. Alabas, O. a., Tashani, O. a., Tabasam, G. & Johnson, M. i. Gender role affects experimental pain responses: A systematic review with meta-analysis. Eur. J. Pain 16, 1211–1223 (2012).
8. Craft, R. M. Modulation of pain by estrogens. Pain 132 Suppl 1, S3–12 (2007).
9. Bartley, E. J. & Fillingim, R. B. Sex differences in pain: a brief review of clinical and experimental findings. Br. J. Anaesth. 111, 52–58 (2013).
10. Zubieta, J.-K. et al. mu-opioid receptor-mediated antinociceptive responses differ in men and women. J. Neurosci. Off. J. Soc. Neurosci.22, 5100–5107 (2002).
11. Smith, Y. R. et al. Pronociceptive and antinociceptive effects of estradiol through endogenous opioid neurotransmission in women. J. Neurosci. Off. J. Soc. Neurosci. 26, 5777–5785 (2006).
12. Mogil, J. S. in Sex, gender, and pain 25–40 (IASP Press, 2000).
13. Merskey, H. Psychosocial Factors in Pain: Critical Perspectives. J. Psychiatry Neurosci. 25, 391–393 (2000).
14. Faherty, B. S. & Grier, M. R. Analgesic medication for elderly people post-surgery. Nurs. Res. 33, 369–372 (1984).
15. Katz, P. P. & Criswell, L. A. Differences in symptom reports between men and women with rheumatoid arthritis. Arthritis Care Res. Off. J. Arthritis Health Prof. Assoc. 9, 441–448 (1996).
16. Calderone, K. L. The influence of gender on the frequency of pain and sedative medication administered to postoperative patients. Sex Roles23, 713–725 (1990).

17. LeResche, L. et al. Sex and Age Differences in Global Pain Status Among Patients Using Opioids Long Term for Chronic Noncancer Pain. J. Womens Health 24, 629–635 (2015).

Key Words: arthritis, Case Study, Chronic Pain, Depression, Women