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The Effect of Menopause on Chronic Pain

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Introduction

- Pain perception is a multifaceted phenomenon influenced by age, gender, individual variations, and hormonal changes
- Menopause, characterized by the cessation of menses for at least 12 months, primarily results from diminished ovarian estrogen production. This hormonal decline leads to various symptoms:
 - Spinal and joint pain
 - Hot flashes
 - Night sweats
 - Chronic fatigue
 - Increased osteoclastic activity with a heightened risk of osteoporosis
 - Psychological symptoms
 - Elevated cardiovascular risk due to increased vasoconstriction and raised LDL levels.
- Menopause typically occurs between the ages of 40 and 58, with an average age of onset at 51.
- Existing literature suggests that perimenopausal and postmenopausal women are at an increased risk of musculoskeletal pain.
- Our study aims to identify trends within our pain clinic to enhance patient care and satisfaction.

Materials and Methods

- Advocate Healthcare IRB approved this study.
- 1,215 patients were included who were treated for different chronic pain conditions for at least three months
- Patients were stratified between pre-and post-menopausal women at the age of 51 years old (considered the national average)
- Of the samples, 248 were premenopausal and 967 were postmenopausal
- Subcategorization include types of pain, race/ethnicity, numeric scale of pain (pre and post treatment), opioid utilization, and MMEs at first and last visit
- IBM SPSS 27 (IMB Corporation, Armonk, NY) was utilized to analyze the collected data; data was analyzed using frequency tables, ANOVA, and cross tabs. Differences with P-value<0.05 were considered significant and incomplete date was excluded from analysis.

Results

	PRETREATMENT NRS (MEAN)	POSTTREATMENT NRS (MEAN)	PAIN DIFFERENCE (MEAN)	PERCENT IMPROVEMENT (MEAN, %)	SUBJECTIVE IMPROVEMENT (MEAN, %)	NUMBER OF VISITS (MEAN)
PRE-MENOPAUSAL	7.613	3.860	3.733	49.070	59.747	13.52
POST-MENOPAUSAL	8.037	4.024	4.027	50.035	63.674	13.22
P VALUE	< 0.001	0.282	0.055	0.601	0.029	0.739

	OPIOID	MEMBRANE STABILIZER	NSAID	MUSCLE RELAXANT	TRICYCLIC ANTIDEPRESSANT	BENZODIAZEPINE	OTHER PSYCH
PRE-MENOPAUSAL	55.65%	41.13%	61.29%	47.58%	12.97%	32.66%	35.89%
POST-MENOPAUSAL	59.17%	43.95%	56.57%	34.33%	5.27%	20.99%	30.30%
P VALUE	0.315	0.424	0.179	< 0.001	< 0.001	<0.001	0.091

Conclusions

- Postmenopausal women initially exhibited lower pain scores upon presentation, yet reported a heightened degree of improvement following intervention.
- Postmenopausal women demonstrated a reduced likelihood of receiving prescriptions for muscle relaxants, tricyclic antidepressants, and benzodiazepines.
- We hope to take these findings into consideration during out practice to better individualize care

Discussion

- Estrogen fluctuations impact pain perception in females, with stable levels acting as a protective mechanism against nociception.
- Elevated estrogen levels are associated with specific conditions, including headaches/migraines, temporomandibular disorders, fibromyalgia, visceral pain, and musculoskeletal pain
- The effect of menopause on pain perception lacks consensus, but literature suggests:
 - Increased sensitivity to vulvodynia and lower back pain in postmenopausal women
 - Mixed views regarding musculoskeletal pain in relation to menopause
 - Increased postoperative pain in elective laparoscopic cholecystectomies for premenopausal women.
- Our data reveals that pre-menopausal women presented to our pain clinic with an average pain score of 7.613, whereas post-menopausal women scored 8.037 (p < 0.001).
- Post-menopausal patients reported a more significant improvement in pain relief status following intervention, 63.67% vs 59.75%, respectively (p = 0.029).
 - No significant difference was observed in procedural intervention between pre- and post-menopausal patients.
 - Post-menopausal patients were notably less likely to use muscle relaxants, TCAs, and benzodiazepines, suggesting a potentially improved response to non-pharmacological management.
- Limitations
 - Post-menopausal women tend to be older, which can act as a confounding factor in terms of disease prevalence and intervention.
- Patient classification into pre- and post-menopause was based on the average menopausal age of 51.

References

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