Evaluation of OMT in Pain Reduction in Pregnant Women During Third Trimester and Postpartum

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Abstract

The female body undergoes physiological changes during pregnancy that often lead to low back pain (LBP). In an effort to assess a non-pharmaceutical treatment option for LBP, a literature review was conducted comparing research trials using Osteopathic Manipulative Treatment (OMT) and its effect on LBP experienced in the third trimester and postpartum. Research studies using the Visual Analog Scale to rate pain were used and the effects of OMT was analyzed. It was found that, compared to usual therapy for LBP, OMT provided significant relief of pain for patients. While research conducted in pregnant populations is limited, further research is required to assess individual treatment modalities and their effects on pain throughout pregnancy and the postpartum period.

♦ Introduction

During pregnancy, a mother's body undergoes physiological changes in response to the growing fetus, which can lead to the development of LBP. These changes include increased weight in the anterior abdomen and compensatory increases in lumbar lordosis and pubic symphysis dysfunction. In addition there is increased axial loading of the intervertebral disks and compression of the lumbar spine. It is estimated that ¼ of women experience at least temporary disability during pregnancy[1] and up to ⅓ of pregnant women will experience severe pain.[2] Postpartum LBP is the leading cause of sick leave following delivery of the child.[2]

Treatment options for LBP are limited as there are few pharmaceutical options that are recommended during pregnancy. OMT provides a non-pharmaceutical option of treatment for women experiencing low back pain during pregnancy. OMT focuses on health and restoration of the musculoskeletal system and homeostasis. There is a lack of sufficient data that evaluates the use OMT for treatment of LBP in women who are in their third trimester of pregnancy. We aim to show that OMT can be a beneficial adjunctive therapy that can provide LBP relief during pregnancy and postpartum.

♦ Hypothesis

Osteopathic manipulative treatment provides a non-pharmacologic option for the reduction of third trimester and postpartum low back pain.

♦ Methods & Materials

The electronic databases PubMed, OstMed, and the JAOA were searched using the terms "osteopathic manipulative treatment and low back pain in pregnancy", from inception until July 15, 2020. All relevant publications were researched. Only research studies assessing OMT usage in women with LBP in their third trimester or postpartum were that reported a VAS score were included in analysis. The VAS data was then compared to assess the effect of OMT on LBP.

♦ Results

Study Period	During Pregnancy	Postpartum	Postpartum
Author and Year	Hensel et al., 2015	Schwerla et al., 2015	Hastings et al., 2016
Country	USA	Germany	USA
Study Design	Randomized Control Trial	Randomized Control Trial	Case series
Study Objective	Evaluate the efficacy of OMT to reduce LBP and improve functioning during the third trimester in pregnancy.	Evaluate the effectiveness of OMT in women with persistent LBP and functional disability after childbirth.	Investigate the effects of OMT on postpartum pain;the location, quality, and timing of pain.
No. of Patients in Trial (No. of dropouts)	400 women 99 women completed all 7 visits 357 women completed at least 4/7 visits	80 women (3 dropouts)	59 women
No. of Patients (mean age) a. Intervention b. Control c. Control	a. 136 (23.0 years) b. 131 (24.1 years) c. 133 (24.7 years)	a. 39 (33.9 years) b. 40 (33.3 years)	a. Not provided b. No control group
Treatment Type (No.) a. Intervention b. Control c. Additional Control	a. OMT (7 visits) b. Placebo ultrasound treatment (PUT) c. Usual care only (UCO)	a. OMT (4) b. No treatment	a. OMT b. No control group
Author Conclusions	OMT was effective for mitigating pain and functional deterioration compared to the UCO group; however OMT did not differ significantly from PUT.	During 8 weeks, OMT applied 4 times led to clinically relevant positive changes in pain intensity and functional disability in women with postpartum LBP.	Preliminary results demonstrate that OMT is efficacious for postpartum pain management. The lack of a control group precludes the ability to make causal claims.

Figure 1. Visual Analog Score (VAS) Differences on Pain Levels Through the Usage of Osteopathic Manipulative Treatment, Placebo Ultrasound, and Usual Care.

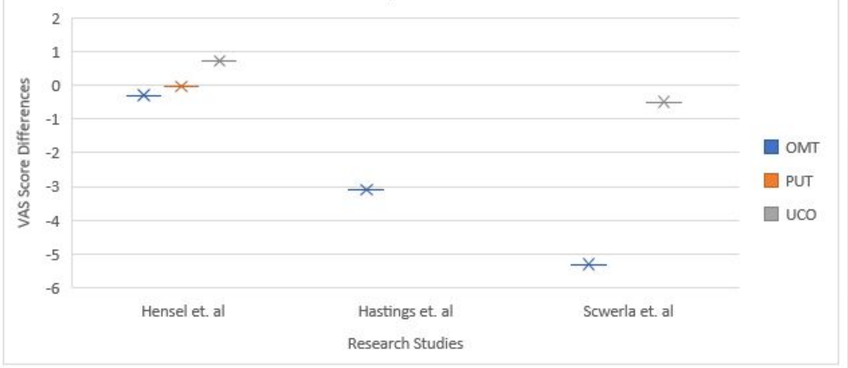
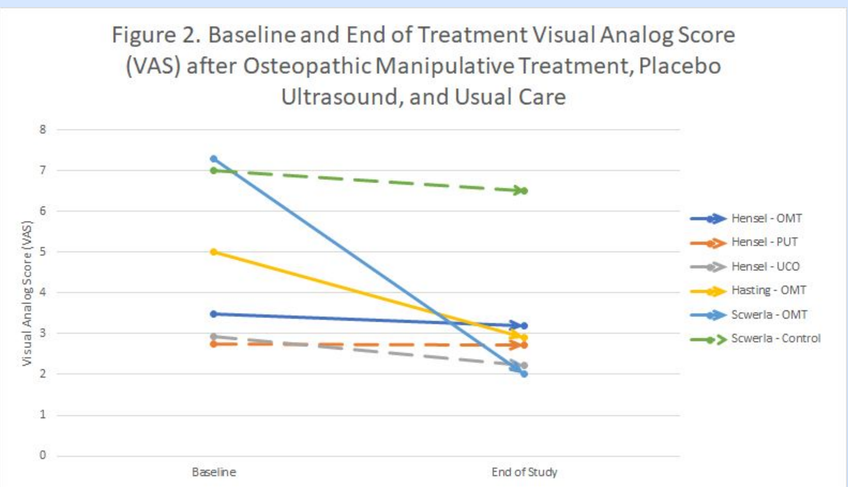


Figure 2. Baseline and End of Treatment Visual Analog Score (VAS) after Osteopathic Manipulative Treatment, Placebo Ultrasound, and Usual Care



♦ Discussion

This review found that the utilization of OMT led to a reduction in LBP for women both prepartum (third trimester) and postpartum. The Visual Analog Scale (VAS) was used to help patients visually rate their pain. Pain reduction effects were seen in all studies through the usage of p-values found through unpaired t-tests with an alpha of .05. This trend was seen standing alone and in comparison to both usual care and placebo ultrasound. Variables consisting of BMI, parity, medication use, age, and form of delivery were all investigated and proven to not be confounders. Ridding of plausible confounders further stabilizes the relationship being investigated.

Within the studies, the forms of OMT used consisted of high-velocity low-amplitude, muscle energy, myofascial release, functional techniques, balanced ligamentous tension, facilitated positional release, soft tissue, sacral release, and CV4.[3-5] Comparisons between techniques were not performed, proving to be a limitation. The review of all these studies as a composite did allow for eliminating the effects of instrumental bias, sampling bias, lack of control groups, and lack of blinding on the relationship being investigated. This was done by sampling papers with a range of geographic and demographic variables, as well as differences in treatment providing physicians. This review was also able to fill the gap seen in other papers, where results from OMT, on the basis of pain reduction, were proven to be maintained 3 months post-procedure. An analysis of the research showed that OMT provided significant pain reduction to patients complaining of pregnancy related third-trimester and postpartum pain.

♦ Conclusion

Pregnancy related back pain continues to be widely experienced. This analysis shows that the inclusion of OMT to usual care provides relief to patients who reported either third trimester or postpartum LBP. While there was some limitation in the type of data available to perform comparison studies, the studies selected in this analysis provide initial evidence of the effectiveness of pain reduction with the use of OMT. Further studies are needed to compare osteopathic techniques with each other as well as larger patient populations to increase the power of the results.

♦ References

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