



Quantitative Sensory Correlates of Pain in Pregnant Women with Opioid Use Disorder

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BACKGROUND

- Opioid use disorder (OUD) and opioid-related deaths among pregnant women in the United States are rising,^{1,2} and there is urgent need for a better understanding of and treatments to manage the complexity of peripartum pain in women with OUD

OBJECTIVE

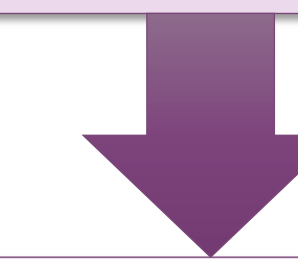
- This study uses quantitative sensory testing (QST), a standardized method for assessing individual pain sensitivity profiles, to evaluate third trimester pain sensitivity among women with OUD compared to age-matched controls

HYPOTHESIS

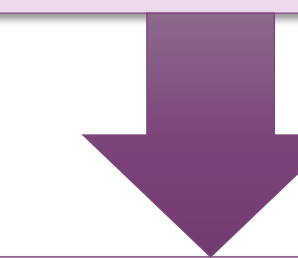
- Women requiring maintenance opioids for OUD during pregnancy will have a change in pain sensitivity immediately postpartum as compared to women who did not maintain opioids during pregnancy.

METHODS

This study was designed as a case control study



Informed and consenting women underwent QST during the third trimester of pregnancy (≥ 27 weeks gestation)



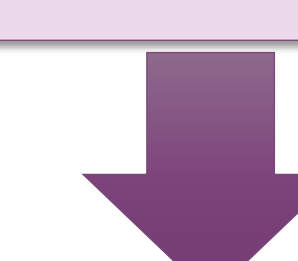
Women were included if they were on medication-assisted treatment (MAT) for OUD



Cases were matched by age with women who do not have OUD



QST protocols included light touch sensitivity, pressure pain threshold and tolerance, temporal summation with sharp touch, heat pain threshold and tolerance, and heat temporal summation and after sensations



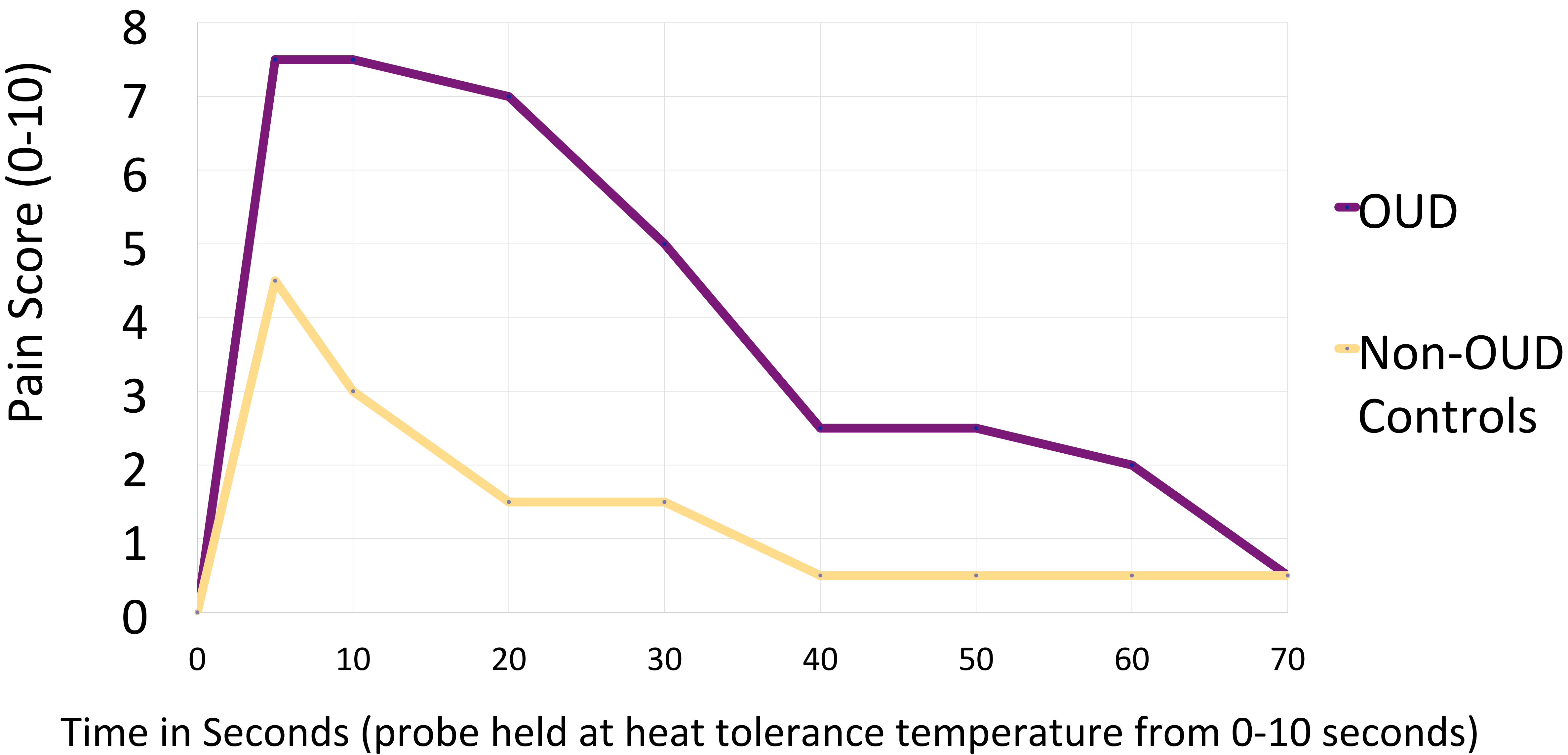
QST data was compared using T tests or Wilcoxon tests where appropriate, and area under the curve (AUC) was calculated using the trapezoidal method

RESULTS

- 2 cases and 2 control patients provided 91 data points during the 3rd trimester and QST data for analysis
- Both cases included in this analysis were receiving buprenorphine-naloxone as MAT
- Baseline depression symptoms, anxiety symptoms, fear of pain, and pain catastrophizing was similar between groups
- Gravidity, age, and BMI were similar between groups, but the OUD group had higher parity (OUD = 2.50 +/- 0.71 vs controls = 0.00 +/- 0.00, p value = 0.04)
- Figure 1 demonstrates differences in pain burdens during 10 seconds of applied heat during heat tolerance testing and during 60 seconds after heat was removed
- Table 1 shows selected third trimester QST variables in cases vs. controls

RESULTS, CONT

Figure 1. Pain Burden During Temporal Summation and After Pain



QST Variable	OUD Cases	Controls
Light touch sensitivity (g)*	4.00 ± 0.23	2.59 ± 0.33
Left trapezius pain threshold (kg/s)*	1.20 ± 0.00	3.70 ± 0.28
Right trapezius pain threshold (kg/s)	3.50 ± 1.84	3.10 ± 0.14
Sharp touch temporal summation (AUC)	56.25 ± 49.14	59.75 ± 24.40
Heat pain threshold (°C)	41.50 ± 0.00	41.20 ± 0.42
Heat pain temporal summation (AUC)	286.3 ± 86.62	92.50 ± 95.46

Table 1. Selected QST variables compared in OUD cases vs. controls

SUMMARY

- These preliminary findings suggest that **pregnant women with OUD experience pain at lower thresholds than controls**, and that they experience greater pain burden under temporal summation paradigms
- Central sensitization may account for these findings and should be further examined in a future larger cohort
- This preliminary analysis will be expanded with additional postpartum QST data which will allow for comparison of pre- and post- partum pain sensitivity profiles
- Additional rigorous research is needed to inform best practices in pain management in this growing population of pregnant patients

Pregnant women with opiate use disorder experience pain at lower thresholds than healthy pregnant controls.

REFERENCES

1. Haight SC, Ko JY, Tong VT, Bohm MK, Callaghan WM. Opioid Use Disorder Documented at Delivery Hospitalization — United States, 1999–2014. *MMWR Morb Mortal Wkly Rep*. 2018;67:845–849.
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