Does a Patient's Ability to Localize their Pain Improve Patient Outcomes and Decrease the Cost of Care? A Prospective Cohort Review

Akhil Sharma, Ryan De Leon[1], Ajith Malige[2], James Robert Lachman
[1]St Luke's University Health Network, [2]Cedars-Sinai Kerlan Jobe Institute

INTRODUCTION: A basic requirement during a history and physical examination, in a foot and ankle clinic, is the ability to pinpoint where a patient experiences discomfort. Infrequently, patients are unable to localize their pain and "paint" over a non-anatomic distribution or point to multiple, independent areas across the foot. The ability to diagnose and treat a problem become significantly more difficult in these circumstances. In this study, the treatment course, clinical and patient reported outcomes (PROs) of patients who can pinpoint where they feel pain and those that "paint" over a non-anatomic area are compared. We hypothesize that patients unable to pinpoint are more likely to require advanced imaging studies, additional diagnostic modalities, and also less likely to improve in PROs at conclusion of treatment.

METHODS: Patients who presented in a foot and ankle clinic with foot pain between August 2021 and August 2022 were prospectively enrolled in this IRB approved study. The senior author completed a questionnaire after consultation identifying the patient as "able to pinpoint location of pain" or "unable to pinpoint location of pain." Patients were excluded if they were < 18 years old, had neuropathy, or had pain as a result of a trauma (where does a trimalleolar ankle fracture hurt for example?). In cases where patients couldn't pinpoint, they were counseled on localizing their symptoms and seen again 6 weeks later and given another chance to pinpoint. Diabetic patients had monofilament exams during presentation to control for undiagnosed neuropathy. Patients were followed for clinical outcomes, need for advanced imaging, need for additional diagnostic testing, and finally PROs. All statistical analysis was conducted using the same software.

RESULTS: Overall, 423 patients were included (342 patients pinpointed and 91 patients did not). Patients unable to pinpoint were more likely to smoke (odds ratio=1.46) and to be diabetic (odds ratio=3.0). Patients with rheumatoid arthritis were more likely to be able to pinpoint (odds ratio=0.82) Patients unable to pinpoint presented with lower initial PROMIS Physical Function (40.0 vs. 43.3, $p < 0.01$) and increased Pain Interference (56.3 vs. 53.3, $p < 0.01$) and Depression (50.4 vs. 43.3, $p < 0.01$) then those that could localize. These patients were more likely to require advanced imaging (p=0.039) and diagnostic testing(EMG/image-guided injection) (p=0.044). Patient-reported outcomes, in addition to starting out worse at presentation, did not see the same improvements at the conclusion of treatment. See the table for a summary of the key study findings.

DISCUSSION AND CONCLUSION: The ability to localize pain during a history and physical examination has direct bearing on a patients' treatment course and outcomes in this single center study. Patients unable to pinpoint a location have lower initial and final PROs and also require more advanced imaging and diagnostic testing. Practitioners should continue to strive to better elucidate patient symptoms in hopes of more efficiently treating these patients. However, further research is needed to truly identify whether this presenting characteristic is truly indicative of patient outcomes.

Initial PROMIS Scores
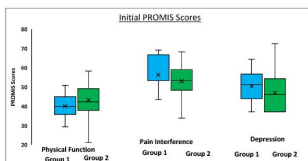
	Group 1 (Unable to Pinpoint)	Group 2 (Able to Pinpoint)	
n (423 total)	91	342	
Age	62.9	60.4	
Male (%)	23 (25.2%)	77(22.5%)	
Diabetes	9 (9.8%)	13 (3.8%)	Odds Ratio=3.0
Smoker (%)	12 (13.2%)	24 (6.7%)	Odds Ratio= 1.46
RA (%)	4 (4.4%)	29 (8.4%)	Odds Ratio=0.82
MRI/CT/US/other	48 (52.7%)	79 (23.1%)	P=0.003
EMG/Diagnostic Injection/Etc.	13 (14.3%)	8 (2.3%)	P=0.005
Surgery Required	10 (11.0%)	92 (26.9%)	P=0.032
PROMIS Pain Interference (Final Follow-up)	53.1	47.2	P=0.048*
PROMIS Physical Function (Final Follow-up)	46.9	50.6	P=0.234
PROMIS Depression (Final Follow-up)	50.2	43.2	P=0.024*