Performance Characteristics of Novel Instruments for Mucosal and Pelvic Muscle Pain Sensitivity Assessment

Zolnoun D[1,2], Essick G[2], Maixner W[2]

[1]Department of Obstetrics and Gynecology; [2] CNSD, School of Dentistry, University of North Carolina at Chapel Hill

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BACKGROUND

Despite considerable advances in our understanding of mechanisms operative in persistent pain states, little is known about the pathophysiology of chronic pain in gynecology. Advances in the field have been critically impaired by lack of methodology and conceptual models to investigate the joint and independent contribution of pelvic muscle and mucosa to persistent pain. **Using provoked vestibulodynia (PVD) as our model, we set to develop novel instruments for assessing mucosal and muscle pain sensitivity.**

PVD is a clinical diagnosis rendered after excluding other conditions and is diagnosed when genital palpation of vulvar mucosa with a cotton swab is painful. PVD is a heterogeneous diagnosis. Other conditions associated with PVD, such as myofasical dysfunction (i.e., difficulty with muscle relaxation and pain), psychological distress (i.e., anxiety and somatization), and non-genital somatic pain in response to thermal and mechanical stimuli, are thought to be secondary to a persistent pain state. PVD is clinically subdivided into two subgroups (primary and secondary) based on onset of pain. Primary VVS is defined when the onset of pain was with the first act of intercourse or tampon use. Secondary VVS is characterized by a pain free interval prior to the onset of pain.

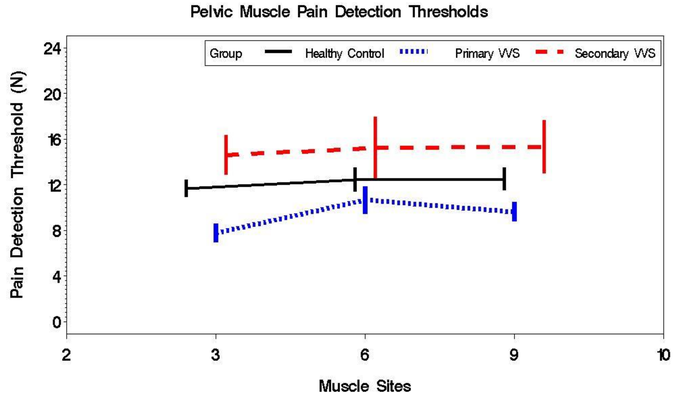
We hypothesized that the experience of pain in the primary subgroup of women with PVD may be driven by pelvic muscle (akin to orofacial pain), with the mucosa acting as a referral site.

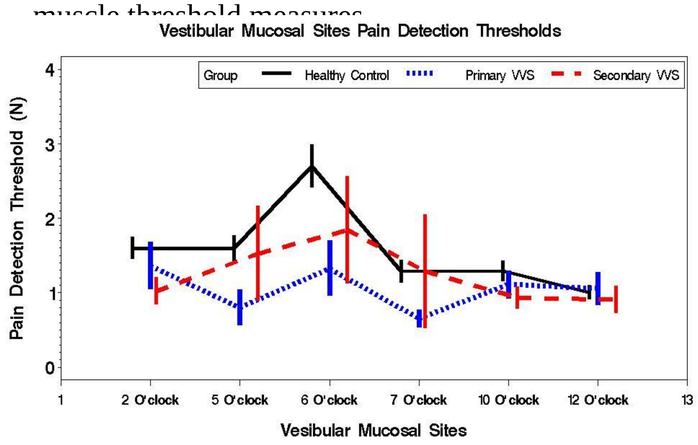
OBJECTIVE

To compare pelvic muscle and mucosal pain sensitivity in subgroups of women with PVD (n=47) and healthy controls (n=22)

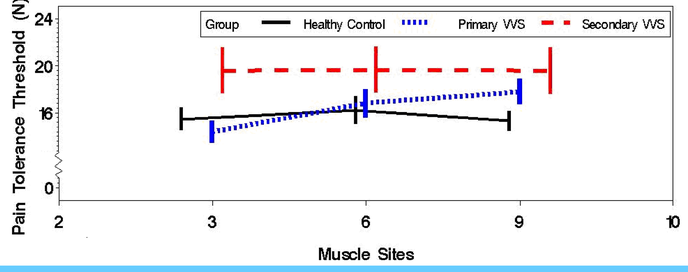
RESULTS

- Our cohort consisted of college educated (80%), Caucasian women (72%), aged 19-49 (mean 27.3, SD= 6.4).
- For the group as a whole (N= 67) no significant difference in mucosal sensitivity was observed (p=0.58). However, significant site and group by site interactions were noted (p<0.0001).
- Unlike mucosa, we observed a significant difference in muscle pain threshold (p=0.005). Similarly, significant site (p<0.0001) and group by site interactions (p=0.043) were observed for the muscle threshold measures.





While we did not find a significant difference in muscle pain tolerance, women with secondary PVD tended to have the highest tolerance measures.

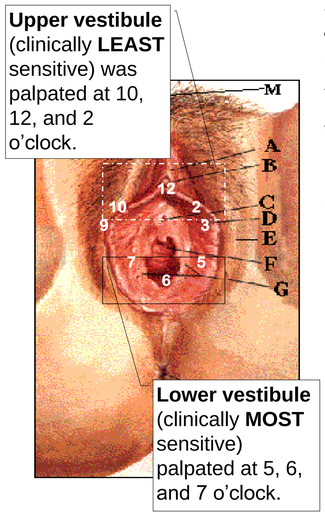


CONCLUSION

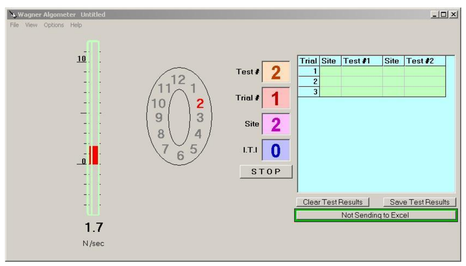
Our data challenges the conventional notion of PVD as a focal mucosal process. Muscle pain sensitivity (unlike mucosa) is distinctly different among subgroups, suggestive of a primary musculoskeletal process.

METHODS

Our protocol was as follows: 1)informed consent, 2) screening exam, 3) structured exam assessing mucosal and pelvic muscle pain sensitivity. The examiner did not have knowledge of group assignment (healthy control (n=22), primary PVD (n=35), secondary PVD (n=12) .



Vulvar mucosal pressure pain threshold was assessed using a cotton swab attached to Wagner instrument. 3 upper vestibular sites were assessed followed by the 3 lower vestibular sites with inter-stimuli intervals of 2 seconds. Participants recorded the first sensation of pain with a mouse click via the computer interface.



Pelvic muscle pressure pain threshold and tolerance were measured with an electronic algometer affixed to an examiner's index finger. Using a similar computer interface and protocol, participants reported the first sensation of muscle pain and when they were no longer willing or able to tolerate pain.