Decrease in Opioid Use Post-Vestibulectomy Based on Pre-Operative Low Intensity Vestibular Shockwave Therapy (LiSWT)

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1. Introduction

Surgeons performing complete vestibulectomy for neuro-proliferative vestibulodynia (NPV) need to consider acute pain relief in the early postoperative period and risks for persistent opioid use. One patient who failed multiple vestibular LiSWT sessions to manage her pain eventually underwent vestibulectomy. We observed that post-operatively there was minimum hydrocodone use. Since a study showed that pre-operative LiSWT improved wound healing and surgical outcome, it was hypothesized that LiSWT promoted enhanced blood supply and angiogenesis through expression of vascular endothelial growth factor and nitric oxide synthesis, and via anti-inflammatory action downregulating necrosis factor B activation thereby lowering inflammatory cytokines. In women undergoing vestibulectomy for NPV, we wished to see if pre-operative LiSWT would reduce post-operative opioid use. We compared opioid use post-op vestibulectomy in patients who had and had not undergone LiSWT just prior to surgery.

2. Material & Method

This is a pilot study of patients' post-operative vestibulectomy experiences with opioid use for post-operative pain management. Patients scheduled for surgery were required to present to the hospital 4 days before surgery for a COVID-19 test. They underwent vestibular LiSWT at our clinic on that day and each subsequent day until surgery; 2400 shocks, energy flux density 0.09-0.11 mJ/mm2, 3 Hz, membrane pressure 3 using the Urogold 100™MTS, FDA-cleared for pain amelioration, providing unfocused electrohydraulic shockwaves with a unique parabolic reflector (OP-155).

3. Results

Patients are routinely prescribed # 60 oxycodone 5 mg/acetaminophen 325 mg tablets to be taken every 4 hours as needed. Mean post-op opioid use was 38 +/- 15 tablets in 10 vestibulectomy patients (mean age 29 +/- 10 years) who did not undergo pre-op vestibular LiSWT; opioid side effects included constipation, nausea, fainting, blurred vision. Mean post-op opioid use was 14 +/- 6 tablets in 9 vestibulectomy patients (mean age 27 +/- 9 years) who did undergo pre-op vestibular LISWT sessions x 3; opioid side effects were restricted to constipation and nausea.

4. Discussion

In this pilot study, pre-op LiSWT using Urogold 100™MTS decreased post-op opioid use after complete vestibulectomy with vaginal advancement flap. While encouraging, more research is needed.