A Prospective, Single-blind, Randomized Controlled Trial of Auricular Acupuncture for the Reduction of Post-Operative Tonsillectomy Pain in Adults

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As of 2015, the leading cause of injury deaths in the United Stated was due to drug overdose. Opioid use and abuse have become a National epidemic. Several federal agencies have issued advisories and guidelines for opioid prescribing. In efforts to reduce prescribing habits of opioids the CDC published new guidelines for prescribing opioids in 2016. Providers are now encouraged to use integrative treatments for managing pain prior to prescribing opioids.

Acupuncture is an ancient Chinese method of treating pain putting needles into zones on the body that correspond to certain body parts. Acupuncture in the Western world has been a topic of increased clinical interest, as it is relatively low risk and cost effective. A literature review of studies dating back to the 1970’s indicated that a vast majority of the data pointed to the efficacy of acupuncture in treating several common pain conditions, but little on its effect on post-surgical pain.

Tonsillectomy is a commonly performed surgery in the United States. Adults tend to have worse post-operative pain with longer recovery times than children. The purpose of this study is to determine if auricular acupuncture given in the operating room significantly reduces post-operative pain, the need for opioid pain medications, and if there is an effect on return to regular food consumption.

Methods:

This is a prospective, single-blind, randomized controlled trial. Subjects that were randomized to the acupuncture group had five ASP gold acupuncture needles placed in their dominant ear after induction of anesthesia and removed prior to emergence. If randomized to the control group, no intervention occurred. Final analysis for the hospital stay was completed on 95 subjects. 45 acupuncture subjects and 50 controls. While in the hospital, morphine equivalents and pain scores were recorded. There was approximately 50% return on a 10 day diary for recording of pain levels, morphine equivalents, and resumption of normal diet after discharge. This data was based on 26 controls and 25 acupuncture subjects. Groups were compared using the Wilcoxon rank sum test, Fisher’s exact test, and a generalized estimating equations (GEE) model for post-discharge pain scores.

Results:

There were no significant differences in post-discharge pain levels or morphine equivalent opioid use between groups. The LARGEST difference in pain occurred at 18 hrs post discharge when the acupuncture group showed lower pain scores (mean difference of 1.0, p = 0.074). There were no significant differences in pain or opioid use based on gender or race. In reference to post op
nausea in recovery, only 9 subjects voiced nausea symptoms or required medications. Only 5 subjects had any vomiting in the PACU. On return to regular diet of those that returned the diary with that response provided there were not any difference in the groups.

Discussion:

There were several limitations to this study. First, return rate on the 10-day post-discharge diary was low. The authors were optimistic to receive improved qualitative data in the post-discharge period, as immediate post-op pain and opioid requirements do not lend to extrapolation of longer term benefit. Secondly, traditional auricular acupuncture, as taught within the Military Health System, allows the needles to remain in for 4-5 days, or until they fall out on their own. One of the biggest difficulties in acupuncture study methodology is trying to establish subject blinding. The authors attempted to isolate that blinding by placing the needles immediately after anesthesia induction and removing them prior to anesthesia emergence. Finally, post-tonsillectomy pain in adults may not be associated with a high level of pain in the long term recovery phase. However, this was one of the most commonly performed surgeries in our institution and the authors sought to start this study with a likely opioid naïve, healthy population to eliminate con-founders.

The most promising finding of this study was a trend towards improved pain in the acupuncture group at 18 hrs. Had we received a higher rate of diary return, this effect may also have extended to a decrease in opioid requirement as well as a faster resumption of normal diet (QOL endpoint).

In the current medical and political climate of the opioid crises, studies involving integrative pain medicine modalities are paramount. Acupuncture is cheap, safe, and has been shown to be effective in a variety of painful conditions. Auricular acupuncture has been taught within the entire range of the Military Health System as a quick, easy to learn approach to pain management. It is worth exploring this modality in future studies, perhaps surgeries involving higher post-operative pain scores or those requiring inpatient stays that would eliminate the need for post-discharge survey return.