EFFICACY OF ARNICA MONTANA IN REDUCING POSTOPERATIVE EDEMA AND PAIN

NCT03944629

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Sample Size and Statistical Analysis

Sample Size

Assuming a mean volumetric change at Day 3 compared to baseline of 3.56 for placebo grou,[24] and a mean volumetric change of 1.0 for arnica group (expected based on the PI's clinical expertise), a standard deviation of 2.56, statistical significance level of .05, and two-sided test, 25 subjects per group (50 total) will be needed to achieve 93% power (nQuery Advisor 7.0).

Up to thirty-five (35) subjects will be randomly assigned to each group. Recruitment will continue until up to seventy (70) subjects have qualified. This will allow for up to 29% dropout to end with a minimum of fifty (50) subjects completing the study.

Statistical Analysis

Descriptive statistics (mean and standard deviations for continuous variables, medians and IQR for ordinal variables, counts and percentages for categorical variables) will be calculated for each variable and stratified by the two treatment groups.

For the primary outcome, the change in postoperative facial swelling as measured by the 3dMD™ system and the change in postoperative pain as measured by VAS, from baseline (pre-operative) to post-operative Day 3, and from baseline to post-operative Day 5, will be compared between the two groups using independent sample t-test if the data are normally distributed, or the Mann Whitney U test if non-parametric methods need to be utilized.

In addition, the volume measurements and the VAS scores will be analyzed using a repeated measures ANOVA accounting for time effect, treatment effect, and treatment by time interaction, adjusting for subject age and sex.

Number of rescue medication doses will be compared between the two treatment groups using Mann-Whitney U test.

P-values less than 0.05 will be considered statistically significant. Statistical analyses will be performed using SAS, Version 9.4 (SAS Institute, Cary, North Carolina).

3dMD™

An initial 3dMD™ scan will be obtained for a preoperative baseline evaluation at the extraction visit. A second 3dMD™ scan will be obtained for evaluation and determination of facial swelling at the Day 3 follow-up visit. A third scan will be obtained at the Day 5 follow-up visit to evaluate the degree of resolution of swelling. The scans will result in a computer-generated image on which the investigator will outline the area of clinical interest and calculate the volume using integration. The

process of surface scanning and volume measurement will use the 3dMDvultus™ software. The 3dMDvultus™ software allows for superimposition of post-surgical images as well as quantitative evaluation of surface and volume changes. The Principal Investigator has worked on previous 3dMD™ studies and had additional training when the camera array was installed. The technique of obtaining the image is straight forward and there is a set of instructions at the installation site for immediate review as necessary.

The degree of facial swelling between the two groups at the two time points (Day 3 follow-up and Day 5 follow-up) will be compared using the data collected from 3dMD™. Furthermore, the change in volume between the two scans taken at the Day 3 follow-up visit and at the Day 5 follow-up visit within each group will also be compared. The volumetric difference between the two groups will be analyzed for any statistical significance.

Randomization

The subjects will be assigned to one of the two groups (arnica or placebo) at a ratio of 1:1 using a randomization scheme by the sponsor. Subjects will be randomized by a study coordinator. The master list/code corresponding to the study medication or placebo will be given to only the Principal Investigator, and only opened in the event that knowledge of the treatment the subject received is necessary.

Blinding

To decrease bias, this study will be double blinded by blinding information about the specific group from the subject and the investigators. The study medication and matching placebo (sugar pill) will be blinded and packaged in blister cards provided by the Sponsor.

Only the Principal Investigator and the Research Coordinator will have access to the sealed chart numbers that identify the medication used, and the code will only be broken at the termination of the study or in an emergency situation. The specification of which group the subject was assigned to will be determined at the end of the study after reviewing and correlating the medication number with the record chart number.