

OPEN ACCESS ARTICLE

Cannula Assisted Transdermal (CAT) Anesthesia: A Novel Approach to Donor and Recipient Area Anesthesia

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ABSTRACT

Introduction: Surgeons and practices utilise several methods of anesthesia for the donor and recipient areas during a hair transplant procedure. There are broad variations in techniques used as well as the agents and needle types used. Anesthesia during a hair transplant is probably one of the most crucial parts of the procedure with patients experiencing different levels of tolerance to it. In this study, we implemented a well-described technique in aesthetic medicine to seek to improve the patient experience and pain tolerance during hair transplant surgery. We sought to assess whether cannula assisted transdermal (CAT) anesthesia for both the donor and recipient areas provides better pain scores compared to the conventional (control) method we currently use.

Methods: The donor and recipient areas of 20 consecutive hair transplant patients were each divided into two equal zones and randomized, giving a total of 40 donor test areas and 40 recipient test areas. Our conventional (control) method of articaine 4% infiltrated using a dental syringe and a 30g needle was used in one side, and 2% lidocaine using a 25g (38mm long) cannula was used in the alternative side. Patients, who were blinded as to the technique used in each area, were asked to provide a pain score based on a numerical rating scale for each test area immediately after injecting.

Results: We analysed 40 donor test areas and 40 recipient test areas. A numerical pain rating scale was implemented and the Wilcoxon Signed Rank Test showed a significant difference between techniques in terms of pain scores in both the recipient ($z=-3.956$, $p=0.00$) and donor ($z=-3.879$, $p=0.00$) areas.

Discussion: The CAT anaesthesia technique in both the donor and recipient areas during a hair transplant procedure was seen as a suitable and safe technique to anesthetize patients. A larger number of patients and assessment using several pain scores can add further validity to this technique in the future.

Keywords: cannula assisted transdermal (CAT) anesthesia, follicular unit excision (FUE), follicular unit transplantation (FUT), local anesthesia

INTRODUCTION

There are several methods of anesthesia surgeons can use for the donor and recipient areas during a hair transplant procedure. The variations can extend to needle types and gauge, the type of local anesthetic agents used, and even whether to use a nerve or ring block. Anesthesia is probably one of the most important components of hair transplant surgery. Not only can it improve the overall patient experience, but it also limits the cardiovascular effects of pain and anxiety. Patients should be both physically and psychologically comfortable during the procedure. Fortunately, the current techniques and agents provide a relatively pain-free procedure. The various agents used and duration of action of each is beyond the scope of this article. Nonetheless, the administration of anesthesia is still considered to be one of the most feared parts of the procedure with patients experiencing different levels of tolerance to it.

Pain is a complex response, determined by numerous factors and multiple regions of the central nervous system (CNS). It is influenced by both physical and emotional stimuli. Several techniques have been employed over the years to limit the pain from injections in infiltrative anesthesia. This includes concomitant physical stimulation through vibration, buffering, warming, using small needle calibers, reducing the rate of injection, adjusting the depth of injection, using a topical anesthesia prior to injection, and, last but not least, providing a tranquil office environment.^{2,5,6}

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