

## “The Role of Topical Anesthesia in Flexible Nasofibrolaryngoscopy” Is It Necessary?

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### Abstract

The development of Otolaryngology in recent decades has been facilitated by the emergence of flexible nasofibrolaryngoscopy, which has become an essential diagnostic tool for the otolaryngologist. However, their use is not without discomfort to the patient, which is why various topical anesthesia options have been proposed for the development of the technique. Cocaine paste, Co-Phenylcaine forte, lidocaine, and others have been part of preparations proposed to decrease the degree of discomfort when making such exploration. However existing results in the literature differ on the need for its use. That is why in this article we attempt to review the existing scientific evidence at present regarding the use of topical anesthesia during flexible nasofibrolaryngoscopy.

**Keywords:** Anesthesia; Topical; Nasofibrolaringoscopia; Flexible; Lidocaine; Epinephrine.

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### Introduction

Since the advent of flexible nasofibrolaryngoscopy (NSLF) in 1968, this has become an essential diagnostic tool in the ENT examination, largely due to the physical characteristics of the instrument (diameter, easy handling) and the advantages in visualization of structures of the upper aero-digestive tract. However, its use has never been free of discomfort to the patient, for that reason various options of topical nasal anesthesia (TNA) have been proposed for the development of this technique to reduce the discomfort.

### Commercial preparations

Initially, cocaine paste was one of the most popular drugs, the situation was changing over time and today is virtually obsolete due to adverse effects from a cardiovascular point of view which is associated to use, apart from the high health cost involved<sup>[1]</sup>. Later, in some countries the association of lignocaine and xylometazolina is marketed, showing similar effects to that obtained with cocaine paste, with a much lower cost compared to this, but this mixture has been slowly losing presence in the market<sup>[2-3]</sup>. Later in some Anglo-Saxon countries began to be marketed a drug called Co-Phenylcaine forte (lignocaine hydrochloride, phenylephrine and benzalkonium chloride), which has an anesthetic effect, vasoconstrictor and decongestant at nasal level.

Despite this, in many countries, either by not having

specific preparations or inability to use legally prepared as cocaine paste, is usually used a topical solution in which a local anesthetic is mixed with epinephrine in order to achieve a local anesthetic effect and decongest nasal mucosa.

Lidocaine, usually one of the most widely drugs used for this purpose, is a member of the amine group, acts like local anesthetic blocking the propagation of nerve impulses to prevent the entry of Na<sup>+</sup> ions through the nerve membrane, and has its maximum effect from the first 2-5min after application. Epinephrine is a catecholamine, acts as a vasoconstrictor, and is usually added to various local anesthetics to delaying the absorption of this and prolonging the local anesthetic effect.

### Precautions

It is important to note that the use of these preparations is not safe for all patients, there are a number of reported side effects to keep in mind when using a mixture of lidocaine and epinephrine, the patient may experience tachycardia, AV block or tremors, which determines having to restrict their use in cardiac patients or patients allergic to the amide group. A similar situation may occur in patients in which cocaine paste is applied. Comparative studies

Is the use of topical anesthesia necessary in flexible NSLF? It is here that, despite being a rational factor to consider and possibly intuitive criterion, several studies question the use of topical nasal anesthesia (TNA) in relation to the reduction of

discomfort during scanning NSFL.

By consulting the literature (Table 1), we find work as developed by Singh et al.<sup>[4]</sup> who evaluated a total of 60 patients, using 4% cocaine none nostril and saline in the contra-lateral, conducted the NSFL in each nasal fossa and posterior to this each patient had to answer a discomfort scale of 0-5 points. In their study, they were not needed anesthetics in tranasal during NSFL ( $p = 0.411$ ), but the fact of applying each sub stanceina separate nostril creates a potential bias in this study due to anatomical variations that may exist between each nostril.

Authors	Displays	Method	Agents used	Value of P
Jhonson et al	15	Prospective, crossover	Cocaine Vs. Oximetazolina/ Suerosalt	<0,05
Chiesa et al	17	Prospective, crossover, double-blind	Lidocaine+Epinephrine Vs. Oxymetazoline/ salineserum	<0,05
Leder et al	152	Prospective, double-blind, randomized simple -3 groups	(Anesthesia / Decongestant / Placebo)	No statistical differences
Singh et al	60	Prospective study	4% cocaine in a nostril/contralateral saline p it	( $p = 0,411$ )
Cain et al	90	Prospective, double-blind, 3-arm	Cophenylcaine Vs. placebo/ Nada	No advantages to using anesthetic
Frosh et al	82	Prospective, randomized, double-blind study	Lidocaine(Xylocaine) Vs. Placebo/Nothing	Global experience( $p = 0.001$ ), pain ( $p = 0.048$ )
Bourolias et al	48	Prospective, randomized	Lidocainespray- vstetracaine-sponge	Tetracaina ( $P < 0,001$ )
Bonaparte et al	120	Prospective, randomized	Lidocaine Spray Spray Vs. placebo±Listerine mouthwash.	Dolor ( $p = 0,011$ ) Discomfort ( $p = 0,008$ )

**Table 1:** Summary of studies included in this review

Subsequently Leder et al.<sup>[5]</sup> evaluated a total of 152 patients were randomized into 3 groups (cocaine, decongestant and placebo), each patient had to respond after the exploration to a test of discomfort was 1 to 5, resulting in a slight trend toward to decreased pain after application of TNA which was not statistically significant. While on the other hand Frosh et al.<sup>[6]</sup> evaluated a total of 82 patients were randomized into 3 groups (lidocaine, placebo, nothing) and after testing, each patient was consulted regarding a visual analog scale to assess the degree discomfort generated by the NSFL resulting in increased pain ( $p = 0.048$ ) and the level of discomfort ( $p = 0.001$ ) with the use of TNA. Cain et al.<sup>[7]</sup> used a similar design, prospective, double-blind, 3 arm study in which compare a group of 90 patients using cophenylcaine, placebo and nothing, being the placebo group, which present lesser degree of discomfort in this study and not getting advantages over the use of the TNA to testing. But in these studies we found a possible risk of bias, since each individual underwent a exploration with a single substance, so every opinion referred only to discomfort in relation to this mat-

ter and did not correspond to the comparison between different substances, apart from the a fore mentioned anatomical variations that can be found in the nostrils of the same patient.

Bouralias et al.<sup>[8]</sup> compared the use of lidocaine-spray 10% versus the use of neurosurgery sponges impregnated with 2% tetracaine. The aim of this study was to determine the validity of using these sponges for topically anesthetize the nasal cavity, resulting in a greater reduction of pain and discomfort when using these sponges soaked in 2% tetracaine ( $p = 0.001$ ). While Bonaparte et al.<sup>[9]</sup> compared the use of lidocaine spray versus placebo, associating or not to use mouthwash with listerine in 120 patients, achieving demonstrate a statistically significant reduction in pain with the use of lidocaine spray ( $p = 0.011$ ) and the discomfort ( $p = 0.008$ ), and showed a greater reduction in discomfort when associating washes with listerine.

Johnson et al.<sup>[10]</sup> evaluated a total of 15 patients, using a crossover study, which compared the use of cocaine vs. oxymetazoline and placebo, in this study were able to demonstrate the benefits of the nasal topical anesthesia using cocaine paste during scanning statistically significantly NSFL ( $p < 0.05$ ). Chiesa et al.<sup>[11]</sup> in a study in 18 patients, also apply crossover study in which they compared the use of Lidocaine+Epinephrine vs. oxymetazoline and placebo during NSFL, the degree of discomfort was assessed by visual analogue scale, and also demonstrated a statistically significant ( $p < 0.05$ ) decreased of pain and discomfort during the test. This being perhaps the ideal design in this type of study because each individual is his own control, is explored in the three substances in one or both nostrils and possible anatomical variations will not be a factor affecting the possible outcomes.

## Conclusion

Despite the diversity of results in the literature, those with greater methodological rigor support the use of topical nasal anesthesia before the NSFL. Achieving demonstrate decreased pain and feeling of discomfort by the patient at the time of testing. However, it is likely that further studies with better methodological design help clarify the existing results.

Based on the evidence we now have, it is possible to recommend the use of topical nasal anesthesia when performing this type of exploration, taking into account the potential risks in patients with underlying heart disease or allergy to any component mix.

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