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Comparison between topical anesthesia with cocaine versus lidocaine plus adrenaline for outpatient laser dacryocystorhinostomy☆,☆☆

F. Alañón[a,*], M.A. Alañón[a], J.A. Jiménez[a], B. Calero[a], A. Noriega[b], G. Plaza[b]

[a] Instituto Lagrimal Internacional, Jaén, Spain
[b] Hospital Universitario de Fuenlabrada, Universidad Juan Carlos I, Madrid, Spain

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ABSTRACT

Objective: To evaluate the effectiveness of topical anesthesia with cocaine versus lidocaine plus adrenaline for outpatient transcanalicular and endonasal dacryocystorhinostomy (TCLDCR) with diode laser under sedation.

Methods: A double blind randomized clinical trial was designed using topical anesthesia for outpatient TCLDCR in the treatment of adult epiphora. A total of 92 patients were enrolled, and randomly allocated to be operated on under sedation and topical anesthesia with cocaine 4% pledgets versus sedation and topical anesthesia with lidocaine 2% plus 1/100.000 adrenaline pledgets. Main outcome measures were postoperative comfort, evaluated by a visual analog scale, presence of secondary effects (blood pressure, heart rate), and resolution of epiphora, evaluated by Munk's scale and endoscopic control.

Results: Patients in both groups reported being comfortable during and immediately after TCLDCR. Visualization of the operative field was adequate, and surgery was successfully completed in all cases. Complications were more common in the cocaine group: sixteen patients from the cocaine group had high blood pressures, versus 2 patients from the lidocaine group (RR = 8). Mean blood loss was 6.09 ml in cocaine group, versus 2.05 ml in lidocaine group (RR = 6). Both parameters were statistically significant ($p = 1.1 \times 10^{-9}$). There were no cases of postoperative epistaxis requiring nasal packing or hospital admission in any group. Success rate was similar in the 2 groups (86.96% group 1 and 89.13% group 2), after 6 months of follow-up.

Conclusions: The combination of topical lidocaine and adrenaline is more effective for outpatient transcanalicular and endonasal dacryocystorhinostomy than topical cocaine. Patient comfort was adequate in both groups, but high blood pressure and blood loss more common after cocaine.

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* *Corresponding author.*
E-mail address: fealfe1@hotmail.com (F. Alañón).

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Comparación entre la anestesia tópica con cocaína y lidocaína con adrenalina en la dacriocistorrinostomía con láser

Palabras clave:
Dacriocistorrinostomía
Transcanalicular
Endonasal
Láser Diodo
Cocaína
Lidocaína

R E S U M E N

Objetivo: Comparar el uso de anestesia tópica de cocaína al 4% con la utilización de una mezcla de lidocaína al 2% y adrenalina al 1/100.000 para la dacriocistorrinostomía con láser (TCLDCR) y sedación consciente, sin infiltración local.

Métodos: En un estudio prospectivo, aleatorizado, a doble ciego, 46 pacientes fueron intervenidos tras la aplicación nasal de un apósito impregnado con cocaína al 4% y 46 pacientes fueron intervenidos tras emplear lidocaína al 2% y adrenalina 1/100.000 de idéntica forma. Se evaluó el bienestar intraoperatorio mediante la escala análogo visual, la presencia de alteraciones cardiovasculares (controlando la frecuencia cardiaca y la presión sanguínea) y la resolución de epífora con escala de Munk y control endoscópico.

Resultados: Los pacientes de ambos grupos estuvieron confortables durante la intervención, en el postoperatorio inmediato y a las 24 h tras la intervención. Los efectos secundarios cardiovasculares durante la cirugía fueron más frecuentes en el grupo de la cocaína. En el grupo 1, 16 pacientes tuvieron cifras tensionales elevadas frente a 2 del grupo 2, riesgo relativo (RR) 8. En el grupo 1, 12 enfermos presentaron frecuencia cardiaca por encima de 100 frente a uno del grupo 2, RR = 6. Un total de 12 pacientes del grupo 1 tuvieron un sangrado mayor de 5 ml (media 6,1 ml) frente a 2 del grupo 2 (media 2,1 ml) RR = 6. Las diferencias entre el grupo 1 y el 2, en cuanto a estas 3 complicaciones, fueron significativas ($p = 1{,}1 \times 10^{-9}$). En ningún grupo hubo casos de sangrado posquirúrgico que precisaran de taponamiento por más de 3 h. Los éxitos quirúrgicos fueron similares en ambos grupos 86,96 y 89,13% a los 6 meses de seguimiento.

Conclusiones: La combinación de lidocaína y adrenalina es efectiva para la DCR endoscópica con láser bajo anestesia tópica y sedación consciente. Esta combinación provee una adecuada anestesia y visualización del campo quirúrgico con menor sangrado e hipertensión arterial que la cocaína.

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Introduction

Cocaine is the only local anesthetic with vasoconstrictor properties. It has been used in ophthalmology since 1884 and for over one century for lacrimal surgery.[1] Cocaine inhibits the recapture of epinephrine and norepinephrine in peripheral adrenergic nerve endings and enhances response to endogenous and exogenous catecholamines which are able to stimulate the cardiovascular and central nervous systems.

Lidocaine is an amide group anesthesic which alters the conduction signal in neurons blocking sodium channels in cell membranes responsible for the voltage required for nervous transmission. Lidocaine has weak vasoconstrictor effects and temporary at serum concentrations below 5 mcg/ml. When the concentration in blood reaches 5 mcg/ml, vessel dilatation occurs due to direct depression of the peripheral smooth muscle. For this reason, in lacrimal surgery it is used together with vasoconstrictors.

The use of lidocaine combined with oxymetazoline or adrenaline[2,3] has also been described for lacrimal procedures. Adrenaline diminishes the vascular absorption of lidocaine, reducing plasma levels up to 40%, extending the duration of anesthesia and enhancing its intensity. The quality of analgesia and anesthesia improves due to the adrenergic alpha-2 effect of adrenaline. It diminishes response to thermal stimuli, has a direct nociceptive blocking action and increases sensory blocking of lidocaine. Vasoconstrictors produce ischemia in nervous roots and therefore block axon impulses.

Remifentanil is utilized for conscious sedation. The required level of effect is obtained quickly by the pharmacokinetic profile of this drug. In combination with midazolam it provides advantages vis-à-vis other opioids such as fentanyl.

Objective

The objective of this research was to compare cocaine with lidocaine and adrenaline for topical anesthesia in lacrimal surgery. To this end, a prospective, randomized and double blind study was designed.

Material and methods

Between September 2009 and May 2010, 92 patients with lacrimal obstruction were operated on with endocanalicular and endonasal dacryocystorhinostomy with diode laser under topical anesthesia without local infiltration and conscious sedation on outpatient basis.

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