

# Topical anaesthetic solutions for pain free suture of lacerations in the Emergency Room.

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## Background:

In a paediatric emergency room, lacerations are frequent. Local anaesthesia by injection of Lidocaine causes pain, fear and anxiety.

The use of "TAC", topical application of a mixture of Tetracaine, Adrenaline and Cocaine, was first reported in 1980 by Pryor in the United States. Its efficiency has been confirmed in multiple publications.

In our Paediatric Emergency Department, Topical anaesthesia has been used for laceration suture since 1992, using TAC initially, then "LAT" (Lidocaine, Adrenaline, Tetracaine) since 2011. The latter, without cocaine, has potentially less side effects or possible toxicity, and is markedly less expensive.

## Aim:

Using two solutions prepared by our hospital pharmacy: TAC (Tetracaine, Adrenaline, Cocaine) or LAT (Lidocaine, Adrenaline, Tetracaine) we evaluated the efficiency of topical anaesthetic mixtures to allow pain free care of lacerations.

We describe the use of topical anaesthesia and present the results of surveys on the efficiency of the two solutions and on patient, caretaker and ER Staff satisfaction.

## Technique:

After cleansing, a few drops of the solution are delivered in the open wound, which is then packed with gauze soaked in 3 to 5 ml of the solution. Digital pressure with a gloved hand is maintained (usually by the parents) for 20 minutes at least. Suture is then carried on as with conventional anaesthesia.

## Method:

During a six month period, we prospectively collected the data of patients admitted for laceration (94% < 5 cm) sutures. Parents, patients, nurses and physicians were asked to fill a satisfaction questionnaire evaluating the process of LAT or TAC application, the patient's pain and anxiety during suturing.

156 charts (54 girls, 102 boys, age 1 to 15 years) were collected.

We analysed the efficiency of the anaesthesia and the need for supplemental Lidocaine injection. By questionnaire to the patients (when appropriate), parents, nurses and physicians, we evaluated the pain related to the procedure, the anxiety, stress and overall satisfaction.

## Results:

The planned suture could be completed without further anaesthesia in 86 % of the patients. 14 % required a supplemental infiltration with buffered Lidocaine. The majority of these were in the group of 11-15 years old, with larger lacerations.

For 71% of the nurses and 77% of the physicians topical anaesthesia was efficient in providing analgesia. 90% of the parents were satisfied with pain management.

TAC and LAT had a similar efficiency and similar results in term of patients and parents satisfaction.

## Conclusion:

Topical anaesthesia is a good alternative to the local anaesthetic infiltration for the suture of lacerations even in small children. It is reproducibly efficient without the anxiety related to needles and the pain of Lidocaine itself.

For similar efficiency, LAT has less potential serious side effects and is less expensive, thus has replaced TAC in our practice.