

## VIEWER'S CHOICE (LETTER TO EDITOR)

### Locally Applied Lignocaine Related Cardiac Arrest in a Neonate With Impetigo After Circumcision

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Local anesthesia is invaluable in undertaking most minor surgical procedures including circumcision (1). They may be administered as injections or by application as topical agents to mucous membranes to produce local analgesia. Local anesthetics including lignocaine act by causing a reversible block to the conduction along nerve fibres, a membrane stabilizing effect. If a significant amount of local anesthetic drug reaches the tissues of the heart and the brain they exert the same membrane stabilizing effect on these organs resulting in a progressive depression of their functions. Coma and apnea may develop subsequently, cardiovascular collapse may result from direct myocardial depression and vasodilatation, but most commonly it is the result of hypoxemia secondary to apnea. Systemic toxicity related to systemically administered local anesthetics though are relatively common phenomenon. However systemic toxicity following a properly managed local anesthetic administration is not all that common especially with lignocaine which is considered the least toxic. In estimating the safe dosage of lignocaine it is important to take into account the rate at which they are absorbed as well as their potency, the patient's age, weight, physique and clinical condition, the degree of vascularity and the mucosal, epithelial and skin integrity of the area to which the drug is applied. The duration of application is the other factor that must be taken into consideration. (2, 3) Local anesthetics do not rely on the circulation to transport them to their site of action, but uptake into the general circulation is important to terminate their action. Following most regional anesthetics procedures, maximum arterial concentrations of the anesthetics is attained within 10 to 25 minutes, so careful surveillance for toxic effects is necessary during the first 30 minutes after its application. Disruption of the integrity of the skin by local or systemic infection is known to predispose to lignocaine toxicity.

A three week previously apparently healthy neonate was rushed into the Pediatric emergency department because of absent cardio pulmonary activity following an elective circumcision under a local anesthesia with lignocaine. The baby is a conception from a well supervised pregnancy to young health Negroid Christian parents who were non consanguineously married. The pregnancy, delivery and perinatal periods were uneventful, the neonatal period has been uneventful so far and the baby has been exclusively breast fed since birth. On examination, the oral temperature was 37 degrees centigrade, he was pale and cyanosed. There was no cardio respiratory activity detected. The peripheral pulses were not palpable. There was an occasional heart beat after the first cardiac thump. He was quite lethargic and generally hypotonic with occasional spontaneous eye opening, poor cry and no motor activity. The abdomen was distended but soft, there were no organomegaly. The circumcised glandular penis was neatly dressed with a gauze bandage. Further evaluation revealed some pustular skin lesions distributed

all over the body especially over the perineum. His hemoglobin concentration was 14g/dl, the total white cell count was 17000/mm<sup>3</sup>, the platelets count was 102000/mm<sup>3</sup>, the blood culture yielded no organism after 48 hours of incubation. Chest x-ray and the serum electrolytes were unremarkable. Given the history and the temporal relationship of lignocaine administration, the co-morbidity of impetigo near perineal skin lesions and the consequential clinical features a diagnosis of a cardiopulmonary arrest following lignocaine application in the setting a predisposing compromised skin integrity due to an impetigenous skin lesion was compatible and plausible. Given the restricted facilities for toxicological drug assay in this setting it was not possible to estimate the exact level of lignocaine to determine if this phenomenon was incidental or coincidental. Prolonged intensive cardiopulmonary resuscitation was instituted with oxygen, mask ambu bag ventilation, intravenous 0.9% saline bolus, and maintenance 10%Dextrose with 0.9% normal saline. Following the initial cycles of cardiopulmonary resuscitation the child responded.

#### REFERENCES

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