

## LACK OF PHARMACEUTICAL INFORMATION : EMLA®-INDUCED SYSTEMIC TOXICITY BY EXCESSIVE TOPICAL DOSE

N. RETUR<sup>1</sup>, K. TOTH<sup>1</sup>, A. LECORRE<sup>2</sup>, B. PAGE<sup>3</sup>, F. LE MERCIER<sup>1</sup>, M. LEBAS-CERTAIN<sup>1</sup>

1. Department of Pharmacy, 2. Department of Emergency Medicine, 3. Department of Intensive Care  
AmbroiseParé hospital (AP-HP), Boulogne Billancourt, France

### Objective

To draw pratican 's attention to the risks of excessive percutaneous application of Emla®-cream.

### Design

- **Case report of intoxication** revealed by excessive topical dose of Emla® cream before laser epilation therapy and complicated with methemoglobinemia and systemic toxicity;
- **Discussion about need to improve pharmaceutical information.**

### Mean outcome measures

Pertinence and coherence of french public assessment report (RCP) of Emla® (including monography and instruction for use) of french drug agency (AFSSAPS) was comared to data of literature review in similar cases.

### Results

#### CASE REPORT:

A 25-year-old man (80 kg), without any medical or medicinal history, was admitted on department of Emergency Medicine with signs of faithness, dyspnea and cyanosis one hour after laser epilation therapy of the back, the thorax and the abdomen following a four-hour-percutaneous application of 100g of Emla® (5%) (20 tubes; 5g per tubes).

A methemoglobin (MetHb) level of 15% was reported on Intensive Care Unit.

He remained asymptomatic and was discharged 24 hours after administration of Methylène blue, 80 mg i.v. over 5 min.

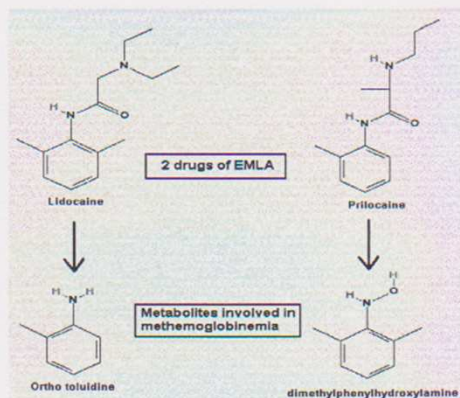


Figure 2: Components and metabolites of Emla®

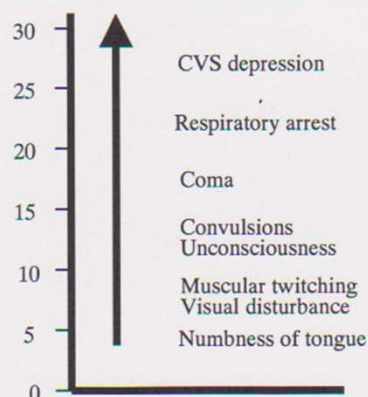


Figure 1: Toxic effects of Lidocaine plasma concentration (µg/ml) (1)

#### DISCUSSION :

Both lidocaine and prilocaine, components of Emla®, and o-toluidine (prilocaine's metapolite) are oxydants and can cause MetHb (2). This effect is rare with therapeutic use and most frequently occur after overdose.

Some factors could be involved in increased adsorption:

- Drug interactions (and other factors as pregnancy) : by increasing protein binding ( $\alpha$ 1-acid glycoprotein, albumin) or by inhibition of its metabolism by liver (cytochrome P450) (1).
- Laser procedure itself : by induction of a thermal injury within the hear follicles with temperatures > 100 °C (3)

- PubMed® reports only one adult case of intoxication with Emla® also occurred after laser epilation therapy (4).
- Regarding monography of RCP, AFSSAPS recommends a maximum dose of 50g Emla® applied to normal skin adult. However, the note of Emla® does not contain any reference to normal dose or warning concerning abrasive skin.

### Conclusion

MetHb and clinically significant toxicity of Emla® in this case report may have resulted from excessive Emla® application on damaged skin. Both of lack of pharmaceutical information on the note of this drug and relative impression of innocuousness of topical application could be involved in this intoxication. As more patients receive Emla® for minor cosmetic procedures, authorities should provide warning about maximal dose on the note of this product.

### References

1. PG Barash et al. Clinical Anesthesia, 3<sup>rd</sup> ed. Philadelphia: Lippincott-Raven; 1997
2. C Lacroix et al. Acta Clin Belg Suppl 2002; (1):58-62
3. MC Grossman et al. J Am Acad Dermatol 1996; 35: 889-94
4. IH Hahn et al. J Emer Med 2004; (26) 1: 85-88