



University of Iowa Hospitals and Clinics
Department of Pharmaceutical Care

Rx Update

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BENZOCAINE SPRAYS – RISK OF METHEMOGLOBINEMIA

Benzocaine spray (Topex[®], Hurricaine[®], Cetacaine[®]) is used as a local analgesic on mucous membranes of the mouth and throat for minor surgical procedures or for inserting tubes. Benzocaine use has been associated with methemoglobinemia. Up to 35% of the dose is systemically absorbed from mucous membranes. **The risk of methemoglobinemia is especially high when the recommended dose is exceeded (longer duration spray or more frequent sprays).** Methemoglobinemia is a condition where too much of the hemoglobin in red blood cells becomes unable to bind and carry oxygen. Patients with methemoglobinemia can suffer effects ranging from headache to cyanosis that can be life-threatening.

The FDA recently issued a Public Health Advisory regarding the use of benzocaine sprays and makes the following points:

- **Patients who have breathing problems** such as asthma, bronchitis, or emphysema, patients with heart disease, and patients who smoke **are at greater risk for complications** related to methemoglobinemia and may be candidates for other forms of therapy.
- **Patients who may have greater tendency for elevated levels of methemoglobin**, such as all children less than 4 months of age and older patients with certain in-born defects [such as glucose-6-phosphodiesterase (G-6-PD) deficiency, hemoglobin-M disease, NADH-methemoglobin reductase (diaphorase 1) deficiency, and pyruvate-kinase deficiency] may benefit from products with different active ingredients such as lidocaine.
- Patients who receive benzocaine sprays **should be given the minimum amount needed**, to reduce the risks associated with methemoglobinemia.
- Patients who receive benzocaine sprays should be **carefully observed for signs of methemoglobinemia** including pale, gray or blue colored skin, headache, lightheadedness, shortness of breath, anxiety, fatigue and tachycardia.
- Methemoglobinemia makes **2-wavelength pulse oximetry (a standard device used to assess the amount of oxygen bound to hemoglobin) (2-wavelength pulse oximetry) unreliable**. If blood is drawn to check for the condition, a co-oximeter is needed to reliably detect methemoglobinemia.
- A characteristic color of the blood (chocolate-brown rather than blood-red) can be a danger sign, but these changes are a late sign of the condition.
- Patients suspected of having high levels of methemoglobinemia should be **promptly treated**.

The brand of benzocaine spray currently available at UIHC is Topex[®]. This is a metered-dose spray that delivers 50 mg of benzocaine per spray which prevents unintentional overdoses. The recommended dose is to apply 2 to 3 sprays. The dose should be reduced in debilitated elderly, acutely ill, and very young patients. Benzocaine spray is not permitted to be used as a “bedside” medication due to the risk of accidental overdose.

The FDA Public Health Advisory can be found at: <http://www.fda.gov/cder/drug/advisory/benzocaine.htm>.