

## Lidocaine as a Pain Reliever in Pharmaceutical Cocktails: A Serious Warning for Community Pharmacists

İlaç Kokteyllerinde Ağrı Giderici Olarak Lidokain: Eczacılar için Ciddi Bir Uyarı

Mitra Rahimi<sup>1</sup>, Ali Saffaei<sup>2</sup>, Zahra Sahraei<sup>3</sup>

<sup>1</sup> Excellence Center of Clinical Toxicology, Department of Clinical Toxicology, Loghman Hakim Hospital, Shahid Beheshti University of Medical Sciences, Tehran, Iran

<sup>2</sup> Student Research Committee, Department of Clinical Pharmacy, School of Pharmacy, Shahid Beheshti University of Medical Sciences, Tehran, Iran

<sup>3</sup> Department of Clinical Pharmacy, School of Pharmacy, Shahid Beheshti University of Medical Sciences, Tehran, Iran

### ABSTRACT

Lidocaine belongs to class 1-B antiarrhythmic agents and is primarily used in the treatment of ventricular arrhythmias. This agent is also used in pharmaceutical cocktails as a pain reliever for conditions such as aphthous stomatitis and dyspepsia. Regardless of its efficacy, it is necessary to consider the safety of lidocaine in pharmaceutical cocktails. Some conditions can alter its pharmacokinetics, and the absorption of lidocaine can increase significantly. Toxic levels of lidocaine in the blood can cause severe toxic symptoms, especially in the central nervous system and the cardiac system. Neurotoxic symptoms such as respiratory depression, convulsion, and coma appear at mild toxicity but cardiotoxic symptoms appear in severe toxicity. These devastating effects of lidocaine toxicity are a warning for the health care providers regarding the irrational usage of this agent in oral pharmaceutical cocktails, especially community pharmacists who are not aware of the toxic effects of lidocaine ingestion, and hence, they should be advised to avoid preparing oral pharmaceutical cocktails using lidocaine.

**Key Words:** Lidocaine, pharmacy, toxicity, pharmaceutical cocktails

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### ÖZET

Lidokain, sınıf 1-B antiaritmik ajanlara aittir ve öncelikle ventriküler aritmi tedavisinde kullanılır. Bu ajan ayrıca, aftöz stomatit ve dispepsi gibi durumlar için ağrı kesici olarak farmasötik kokteyllerde kullanılır. Etkinliğinden bağımsız olarak, farmasötik kokteyllerde lidokain güvenliğinin göz önüne alınması gerekir. Bazı koşullar ilacın farmakokinetiğini değiştirebilir ve lidokain absorpsiyonunu önemli ölçüde artabilir. Kandaki lidokain toksik seviyeleri, özellikle merkezi sinir sisteminde ve kardiyak sistemde ciddi toksik semptomlara neden olabilir. Solunum depresyonu, konvülsyon ve koma gibi nörotoksik semptomlar hafif toksisitede görülür, ancak kardiyotoksik semptomlar ciddi toksisitede görülür. Lidokain toksisitesinin bu yıkıcı etkileri, sağlık personeli için bu maddenin oral farmasötik kokteyllerde irrasyonel kullanımı ile ilgili bir uyarıdır, özellikle lidokain alımının toksik etkilerinin farkında olmayan eczacılara bundan kaçınmaları ve bu nedenle lidokain kullanarak oral farmasötik kokteyller hazırlamamaları da önerilmelidir.

**Anahtar Sözcükler:** Lidokain, eczane, toksisite, farmasötik kokteyller

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Lidocaine belongs to class 1-B antiarrhythmic agents and is primarily used in the treatment of ventricular arrhythmias. It exerts a significant local anesthetic effect and is currently available as topical and injectable formulations. This agent is also used in pharmaceutical cocktails as a pain reliever for conditions such as aphthous stomatitis and dyspepsia (1). However, the efficacy of this agent has not been confirmed for these purposes. In addition, some reports have stated that lidocaine is ineffective for the abovementioned conditions (2). Regardless of its efficacy, it is necessary to consider the safety of lidocaine in pharmaceutical cocktails. Pharmacists consider lidocaine as an agent with high first pass effect, and they believe that the ingestion of this medication is safe due to its poor absorption. However, in fact, some conditions can alter its pharmacokinetics, and the absorption of lidocaine can increase significantly. Examples of such conditions include poor hepatic flow, pathological changes in liver structure, loss of weight, known steatosis, impaired microsomal metabolic activity, and congestive heart failure(3). In addition, any medication that slows down the hepatic flow can increase lidocaine absorption through the gastrointestinal tract. Consequently, this can lead to lidocaine toxicity in such patients. There are few reports in the literature describing about fatal lidocaine toxicity after its ingestion due to suicidal intentions(4). Toxic levels of lidocaine in the blood can cause severe toxic symptoms, especially in the central nervous system and the cardiac system. Neurotoxic symptoms such as respiratory depression, convulsion, and coma appear at mild toxicity but cardiotoxic symptoms appear in severe toxicity. An overdose of lidocaine leads to death due to ventricular fibrillation or cardiac arrest(5).

These devastating effects of lidocaine toxicity are a warning for the health care providers regarding the irrational usage of this agent in oral pharmaceutical cocktails, especially community pharmacists who are not aware of the toxic effects of lidocaine ingestion, and hence, they should be advised to avoid preparing oral pharmaceutical cocktails using lidocaine.

### Conflict of interest

No conflict of interest was declared by the authors.

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**Address for Correspondence / Yazışma Adresi:** Zahra Sahraei, Pharm. D, BCPS, Department of Clinical Pharmacy, School of Pharmacy, Shahid Beheshti University of Medical Sciences, Tehran, Iran E-mail: zahra.sahraei@yahoo.com

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