



Direct Healthcare Professional Communication

Sep. 2025

Carbamazepine (liquid oral formulation): Contraindicated in Neonates(below 4 weeks of age) and Preterm babies (less than 44 post-menstrual weeks of age) due to propylene glycol

Dear Healthcare Professional,

MAH, in agreement with the General Administration for Pharmaceutical Vigilance of the Central Administration for Pharmaceutical Care at The Egyptian Drug Authority, would like to inform you of the following:

Summary:

- The primary reason for this contraindication is the presence of propylene glycol as an inactive ingredient in some liquid formulations of carbamazepine.
- Neonates have underdeveloped liver and kidney functions. These organs are crucial for metabolizing and eliminating substances from the body. As a result, propylene glycol cannot be processed efficiently and accumulates in their system.
- The accumulation of propylene Glycol in the neonate body increases the risk of serious adverse reactions such as metabolic acidosis (a condition in which the blood is too acidic), renal (kidney) dysfunction including acute tubular necrosis (damage to the structures in the kidneys that filter blood), acute renal failure and liver dysfunction.
- Healthcare professionals should also be aware that if Carbamazepine is given with other medicines containing propylene glycol or with any substance that is broken down by the enzyme alcohol dehydrogenase, such as ethanol, the risk of propylene glycol accumulation and toxicity is increased.

Background

Propylene glycol (PG) is a common excipient in liquid oral dosage forms, where it is used as a solvent, humectant, and preservative. While it is "generally recognized as safe" (GRAS) by regulatory bodies like the FDA and WHO for its intended uses, there are risks associated with its presence, particularly in certain patient populations and at high doses.

The primary risks of propylene glycol toxicity are linked to accumulation in the body, which can occur due to high-dose exposure or impaired metabolism and excretion. This makes certain groups particularly vulnerable:

- Infants and Young Children.
 - Patients with Kidney or Liver Impairment.
 - Patients Receiving Multiple Medications that Propylene glycol is used in many different medications, both oral and intravenous.
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Propylene glycol toxicity primarily affects the central nervous system, kidneys, and metabolic balance. The effects are dose-dependent and can include:

- Central Nervous System (CNS) Depression.
- Metabolic Abnormalities that could lead to lactic acidosis.
- Hyperosmolality.
- Kidney Injury which could lead to acute kidney injury and renal dysfunction.
- Cardiotoxicity
- Seizures

Reference

PubMed:

<https://pubmed.ncbi.nlm.nih.gov/38325632/#:~:text=The%20MoA%20involves%20an%20increase,and%20red%20blood%20cell%20damage.>

CDC:

https://archive.cdc.gov/www_atsdr_cdc_gov/csem/ethylene-propylene-glycol/propylene_glycol.html

Drug.com:

<https://www.drugs.com/inactive/propylene-glycol-270.html#:~:text=Rapid%20infusion%20of%20solutions%20containing,oral%20solutions%20containing%20propylene%20glycol.>

EMA:

<https://www.ema.europa.eu/en/news/meeting-highlights-pharmacovigilance-risk-assessment-committee-prac-1-4-september-2025>

Call for reporting

Healthcare professionals are asked to report any suspected adverse reactions via the Egyptian reporting system:

Name: General Administration for Pharmaceutical Vigilance

Email: pv.followup@edaegypt.gov.eg

Online reporting: : <https://vigiflow-eforms.who-umc.org/eg/med>

QR Code:

Hotline: 15301

