


Glycerol (Glycerine)

Newborn use only

2024

Alert	
Indication	Facilitation of passage of meconium. Constipation.
Action	Osmotic laxative that acts by increasing osmotic pressure in the gut; It also stimulates rectal contraction. ¹ Onset may take 15–30 minutes.
Drug type	Laxative
Trade name	Petrus Glycerol Suppositories BP 0.7 g for Infants (glycerine) Glycerol B.P. Liquid (Perrigo Australia)
Presentation	Suppositories – Petrus suppository infant size glycerol 0.7 g in a 1 g suppository (also contains gelatine and water) Liquid – Glycerol B.P. 100 mL bottle. Contains 100% w/w glycerol
Dose	Glycerine suppository – sliver. Glycerol liquid – 0.2 mL of diluted 80% glycerol*. ⁷ *Refer to maximum daily dose section and evidence summary for alternate dose and strength. ⁵
Dose adjustment	N/A
Maximum dose	Dose of 1 mL/kg of 1:4 diluted glycerol at 12–24-hour intervals has been used. ⁵
Total cumulative dose	N/A
Route	Per rectum
Preparation	Glycerine suppository – cut a small sliver. Glycerol 80% liquid enema Bedside preparation <ul style="list-style-type: none"> - Draw up 4 mL of glycerol 100%. Add 1 mL of water for injections to make a total volume of 5 mL of 80% glycerol. Use immediately and discard any remaining liquid. Preparation in pharmacy <ul style="list-style-type: none"> - Pharmacy may be able to prepare liquid glycerol 80% (dilute 80 mL of 100% glycerol with 20 mL of sterile water).⁷
Administration	Glycerine suppository – gently insert the sliver fully into the rectum. Glycerol liquid: draw 0.3 mL of diluted (80%) glycerol into 1 mL syringe and place the enema using one of the following methods: - <ol style="list-style-type: none"> 1. Syringe with a clot catcher: Attach Clot Catcher to the syringe and prime with the solution. Insert 1–2 cm of Clot Catcher through anus and administer 0.2 mL.  <ol style="list-style-type: none"> 2. Urinary catheter: Attach the catheter to the syringe and prime with the solution. Insert 1–2 cm of a lubricant coated catheter through anus in babies < 1kg and 2–3 cm in babies > 1kg and administer 0.2 mL.⁸
Monitoring	Stool output
Contraindications	Dehydration, rectal bleeding
Precautions	Congenital gastrointestinal conditions – to discuss with surgeon prior to prescription.

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	Major cardiac defects (risk of fluid shift)
Drug interactions	N/A
Adverse reactions	Diarrhoea, rectal irritation, bleeding per rectum (from insertion of the syringe), abdominal pain
Overdose	
Compatibility	N/A
Incompatibility	N/A
Stability	Glycerol liquid preparation – 30 days expiry after pharmacy preparation.
Storage	Diluted glycerol liquid preparation – keep it refrigerated. ⁷ Glycerine suppository – keep it at room temperature.
Excipients	
Special comments	Glycerol is the pure compound CAS Number 56-81-5 while glycerine (Australian/British spelling) or glycerin (US spelling) refers to products that contain varying amounts of glycerol.
Evidence	<p>Efficacy</p> <p>Feed intolerance: Systematic reviews that enrolled preterm infants <32 weeks' gestational age (GA) and/or <1500 g birth weight showed that prophylactic administration of glycerine laxatives did not reduce the time required to achieve full enteral feeds and did not influence duration of hospital stay, mortality or weight at discharge.^{2,3,4} However, an observational study by Shim 2007 reported routine use of glycerine enema in infants <1500 g birthweight resulted in a shorter time to full enteral feeds and reduced sepsis rate.⁵ This suggests that further trials of glycerol for prevention or treatment of constipation in at risk preterm infants are required. They used 1:4 diluted glycerol at 1 mL/kg every 12–24 hours.</p> <p>Hyperbilirubinaemia: Systematic review to study the efficacy of early meconium evacuation using per rectal laxatives on the concentration of serum bilirubin and the need for phototherapy in healthy term infants identified 3 trials. Two trials used glycerine suppository whereas one used glycerine enema for meconium evacuation. Meta-analysis was not possible due to clinical heterogeneity in the choice of laxatives and frequency of intervention. In all three studies, serum bilirubin at 48 h and the need for phototherapy was not significantly different between the two groups.⁶</p> <p>Glycerine enemas versus suppository: 0.2 mL of 80% glycerol liquid enema administered with a syringe has been shown to be as effective in terms of passage of stool and easier to administer in comparison to glycerine suppository chip in neonates.⁷</p> <p>Glycerine enema preparations: Shim et al performed glycerine enema at 1 mL/kg every 12–24 h within 24 h after birth in their study. The glycerol was diluted 1: 4 with distilled water and was instilled slowly through a 5F Nelaton catheter which was cut to 3 cm and connected to a syringe. The tip of the catheter was placed 0.5 cm above the anus.⁵ Zenk et al used 0.2 mL of 80% glycerol liquid based on the strength indicated in FDA monograph for non-prescription laxative. The authors chose 0.2 mL irrespective of the body weight based on the comparative approximate volume of chip of suppository.⁷</p> <p>Safety:</p> <p>Trials conducted in neonates were underpowered to report any uncommon serious adverse effects.</p>
Practice points	

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References	<ol style="list-style-type: none">1. Gilman AF, Rall WT, Nies AD, Taylor P. Goodman and Gilman's The Pharmacologic Basis of Therapeutics. New York: McGraw-Hill Companies, 1990.2. Anabrees J, Shah VS, AlOsaimi A, AlFaleh K. Glycerin laxatives for prevention or treatment of feeding intolerance in very low birth weight infants. Cochrane Database of Systematic Reviews 2015, Issue 9. Art. No.: CD010464. DOI:10.1002/14651858.CD010464.pub2.3. Kamphorst K, Sietsma Y, Brouwer AJ, Rood PJ, van den Hoogen A. Enemas, suppositories and rectal stimulation are not effective in accelerating enteral feeding or meconium evacuation in low-birthweight infants: a systematic review. Acta Paediatrica. 2016 Nov;105(11):1280-7.4. Deshmukh M, Balasubramanian H, Patole S. Meconium evacuation for facilitating feed tolerance in preterm neonates: a systematic review and meta-analysis. Neonatology. 2016;110(1):55-65.5. Shim SY, Kim HS, Kim DH, Kim EK, Son DW, Kima B, et al. Induction of early meconium evacuation promotes feeding tolerance in very low birth weight infants. Neonatology 2007;92(1):67-72.6. Srinivasjois R, Sharma A, Shah P, Kava M. Effect of induction of meconium evacuation using per rectal laxatives on neonatal hyperbilirubinemia in term infants: a systematic review of randomized controlled trials. Indian journal of medical sciences. 2011 Jul 1;65(7).7. Zenk KE, Koeppel RM, Liem LA. Comparative efficacy of glycerin enemas and suppository chips in neonates. Clinical Pharmacy 1993;12(11):846-8.8. Haiden N, Jilma B, Gerhold B, et al. A. Small volume enemas do not accelerate meconium evacuation in very low birth weight infants. J Pediatr Gastroenterol Nutr. 2007 Feb;44(2):270-3.
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