Assessment of cefdinir solubility in milk recommended for patients with phenylketonuria

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Abstract

Background: Phenylketonuria (PKU) is an inherited metabolic syndrome that if not properly managed can cause progressive mental retardation. Like other children, those with PKU might become susceptible to different bacterial infections and hence need to use antibiotics. Cefdinir is an oral, broad-spectrum 3rdgeneration cephalosporin antibiotic.

Objective: The aim of this study was to assess the solubility of cefdinir in solutions of Phenyl-Free 2 milk and to assess if co-administration might result in reduced or enhanced solubility which might affect the absorption of the drug.

Methods: Solubility of cefdinir was assessed in solutions of Phenyl-free 2 milk at different pH points (1.2, 4.5, 6.8, and 7.7). A polarographic method was used to quantify cefdinir in solutions. **Results:** Solubility of cefdinir was significantly higher in Phenyl-Free milk at adjusted pH of 6.8 and unadjusted pH of 7.7 compared to adjusted pH of 1.2 and pH 4.5.

Conclusion: From this study, we can conclude that the solubility of cefdinir was significantly reduced in Phenyl-Free 2 milk compared to biorelevant media. These findings might suggest a need for dose adjustments when cefdinir oral dosage forms are to be administered concurrently with Phenyl-Free 2 milk in patients with PKU.