Proton pump inhibitors, purple gastric juice and peptic ulcer disease

An 87-year-old woman has a 6-year history of chronic kidney disease with medical control and valvular heart disease status post metal valve repair in 2011. She had undergone warfarin therapy for 5 years. Passage of melena developed 6 days prior to admission and normocytic anemia (hemoglobin: 4.0 mg/dl) was observed. Pale conjunctiva and epigastric tenderness were found during physical examination. Esophagogastroduodenoscopy revealed gastric ulcer (Forrest IIa), duodenal ulcer scars with luminal deformity and delayed gastric emptying. Although endoscopic hemostasis was undergone, passage of tarry stool presented. Therefore, proton pump inhibitor injection (esomeprazole 40 mg/d) was continued. Although gastrointestinal bleeding improved gradually, intravenous esomeprazole was shifted to the enteral form (Nexium 40 mg/d). And she was allowed to take clear liquid diet (Resource Fruit Beverage) since there was no evidence of concurrent gastrointestinal tract bleeding. However, she was plagued with poor digestion and purple fluid regurgitated from nasogastric tube was observed. No occult blood in the purple fluid was found by guaiac test and this phenomenon was resolved rapidly after adding prokinetics (Figure 1).

Esomeprazole and omeprazole rapidly degrade to dark purple-coloured ‘poppy seed’—like compound below pH 4. Once the tablets were dispersed in the water, it will lose the protection of enteric coating. Drug is released before it reaches the intestine, and delayed gastric emptying might increase contact between gastric acid and the drug. Purple discoloration of the feces and sputum were reported to the Netherlans Pharmacovigilance Centre Lareb, almost all of these cases occurred accompanied with delayed gastric emptying. Some cases of gastric content discoloration associated with oral esomeprazole/omeprazole in liquid dispersion form were reported in infants. This phenomenon is usually benign and resolves spontaneously.

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References
