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A Case Series on Gastrointestinal Injury Associated with Calcium Polystyrene Sulfonate and Sevelamer Administration in Patients with Renal Failure

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Case Study : Calcium polystyrene sulfonate is used to treat hyperkalemia, and sevelamer is used to treat hyperphosphatemia. These medications are known to potentially cause severe gastrointestinal complications, including ulcers and perforations. This study aims to raise awareness of the adverse effects of these drugs by presenting cases of pathologically proven gastrointestinal injury associated with their use. We retrospectively analyzed 15 patients with pathologically confirmed gastrointestinal injury associated with Calcium polystyrene sulfonate or sevelamer at a single tertiary medical center from 2012 to 2024. Demographic characteristics (sex, age), underlying renal diseases, administered medications, locations of the injured lesions, and diagnoses were investigated. Among the 15 cases, 9 were male and 6 were female, with a mean age of approximately 64.4 years(Range, 34–83 years). The primary underlying diseases were ESRD/CKD in 9 cases and acute kidney disease(AKI or AKI on CKD) in 6 cases. Regarding the medications used, Calcium polystyrene sulfonate alone was administered in 11 cases, sevelamer alone in 2 cases, and a combination of both drugs in 2 cases. The most common lesion site was the colorectum(9 cases), followed by the esophagus (3 cases), ileum(2 cases), and stomach(1 case). The most frequent diagnosis was ulcer(8 cases), 3 of which were accompanied by perforation. There were also 4 cases of perforation without accompanying ulcers, which included 2 cases of colonic perforation where both drugs were used concurrently. Other findings included ischemic colitis in 2 cases and tubular adenoma in 1 case. Calcium polystyrene sulfonate and sevelamer can induce severe ulcers and perforations across a wide range of the gastrointestinal tract. Therefore, when acute gastrointestinal symptoms of unknown etiology occur in patients using these medications, drug-related injury must be included in the differential diagnosis and actively differentiated. Early discontinuation of the administered drug is essential for improving patient prognosis.

Table1. summary of cases.png

	Total 15 cases
Sex	Male: 9 Female: 6
Age	34-83year old(Mean 64.4 year old)
Underlying kidney disease	ESRD/CKD: 9 AKI: 6
Agent used	Polystyren sulfonte calcium: 11 Sevelemer: 2 Combination: 2
Lesion	Colorectum: 9 Esophagus: 3 Ileum: 2 Stomach: 1
Diagnosis	Ulcer: 8 (Perforation: 4) Perforation only: 4 Ischemic colitis: 2 Tubular adenoma: 1

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