Hyperkalemia and Sodium Polystyrene Sulfate Use in a Regional Training Hospital

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Discussion

Our study demonstrated SPS is often used in mild stages of hyperkalemia in patients with preserved eGFR. As shown in Table 5, 17 patients with mild hyperkalemia had mild CKD who should be able to readily eliminate K+. For such a group, other therapy should therefore be considered. The omission action and duration of SPS is very important. Patients with moderate to higher levels of hyperkalemia have a higher chance of developing cardiac arrhythmias. The administration of SPS alone without other temporizing treatments should be avoided. When we examined the patients estimated GFR (eGFR) at the time of their hyperkalemia to determine whether the patients received higher SPS was associated with a lower eGFR. This correlation was true for patients (P = 0.024) or higher doses of SPS. As we expected, the patients with higher K+ levels had a greater likelihood of receiving SPS and higher total doses (P = 0.013). However, the patients’ initial SPS dose (P = 0.089) and frequency (P = 0.704) did not depend on K+. The majority of patients received SPS under an electronic alert 24 h prior to their treatment. However, the patients with higher K+ levels had a greater likelihood of undergoing an ECG 24 h prior to SPS administration (P = 0.007). There were five cases of possible gastrointestinal complications with SPS, but no study in our timeframe. These complications included possible gastrointestinal or duodenal ulcers, ischemic colitis, acute diverticulitis, and rectal ulcers. Our study did not show a correlation between GI complications and higher doses (P = 0.952) or SPS frequency (P = 0.546). However, a larger study is needed. Regardless, for patients with known gastrointestinal issues, if SPS is used in a patient, we can strongly advocate against the use of SPS in these patients. Given that it can increase the risk of gastrointestinal complications. Our study did not find association between the safety concerns of SPS. A prospective study by Leaf et al. demonstrated that implementing an electronic alert in EMR, indeed, reduced SPS usage in an inpatient setting, however, the method did fail to prevent the use of SPS.

Conclusions

This retrospective review suggested that SPS is used often with mild stages of hyperkalemia without ENG evaluation or without hyperkalemia. ENG changes prior to SPS administration. SPS is also often used in patients with mild CKD who should able to readily eliminate K+. SPS was more frequently used in patients with moderate to higher levels of hyperkalemia than in patients with pre-existing GI concerns despite FDO warnings. We determined that SPS is being used quite aggressively in the community hospital. Clinicians should re-familiarize themselves with the practice guidelines regarding SPS use.