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Add-on Therapy of Potassium-binding Resin for Hyperkalemia in Chronic Kidney Disease Patients on Renin-angiotensin System Blockers

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Purpose : This prospective study aimed to evaluate the safety and efficacy of potassium-binding resin (PBR, Kayexalate® or Argamate®) for managing hyperkalemia induced by Renin-Angiotensin System (RAS) blockers in chronic kidney disease (CKD) patients without their discontinuation.

Methods : Besides conservative remedies including low-potassium diet, all hyperkalemic CKD patients (n=21, [K] >5.5 mEq/L) received PBR added on angiotensin-converting enzyme inhibitor (Moexipril, n=2) or angiotensin-receptor blocker (Irbesartan, n=19) with, at least, weekly monitoring of serum [K] if its level remains more than 5.5 mEq/L for more than 2 months (mean±SD, 6.8±5.9 mon; range, 2-26 mon).

Results : Baseline serum [K] on RAS blocker alone (5.1±0.4 mEq/L; 4.2-6.1 mEq/L) increased to 6.0±0.4 mEq/L ($p<0.05$) before adding PBR, and then it was decreased significantly to 5.3±0.6 mEq/L at the first clinic visit ($p<0.05$) and to 5.0±0.7 mEq/L at the last clinic visit ($p<0.05$) following the administration of PBR added on RAS blocker. Furthermore, mean serum [K] during PBR therapy were not different significantly between diabetic and non- diabetic groups (5.2±0.3 mEq/L vs 5.1±0.5 mEq/L), among stages of CKD (stage 3, 5.2±0.4 mEq/L; stage 4, 5.1±0.4 mEq/L mEq/L; stage 5, 5.5±0.5 mEq/L), and with or without concomitant intake of other drugs known to interfere K homeostasis (5.1±0.4 mEq/L vs 5.2±0.3 mEq/L) at the last clinic visit. During the study period, GFR, serum creatinine and urinary protein excretion didn't change significantly (GFR, from 23.1±9.1 ml/min to 19.8±8.1 mL/min, p=NS; serum creatinine, from 3.1±1.2 mg/dL to 3.5±1.2 mg/dL, p=NS; urine protein, from 2.9±2.8 g/day to 2.0±1.5 g/day, p=NS). All but two CKD patients tolerated the co-administration of PBR and RAS blockers throughout this study, one due to severe refractory hyperkalemia ([K] >6.5 mEq/L) and the other one due to nausea.

Conclusion : the development of hyperkalemia on RAS blockers in CKD patients regardless its causes, stages and concomitant trial of other drugs doesn't necessarily lead to withdrawal of RAS blockers when the cautious add-on therapy of potassium-binding resin with other conservative remedies launches, unless severe refractory hyperkalemia persists