

Clinical and Economic Impact of Hyperkalemia in Patients with Chronic Kidney Disease and Heart Failure

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AMCP Nexus 2016 | National Harbor, MD

Purpose

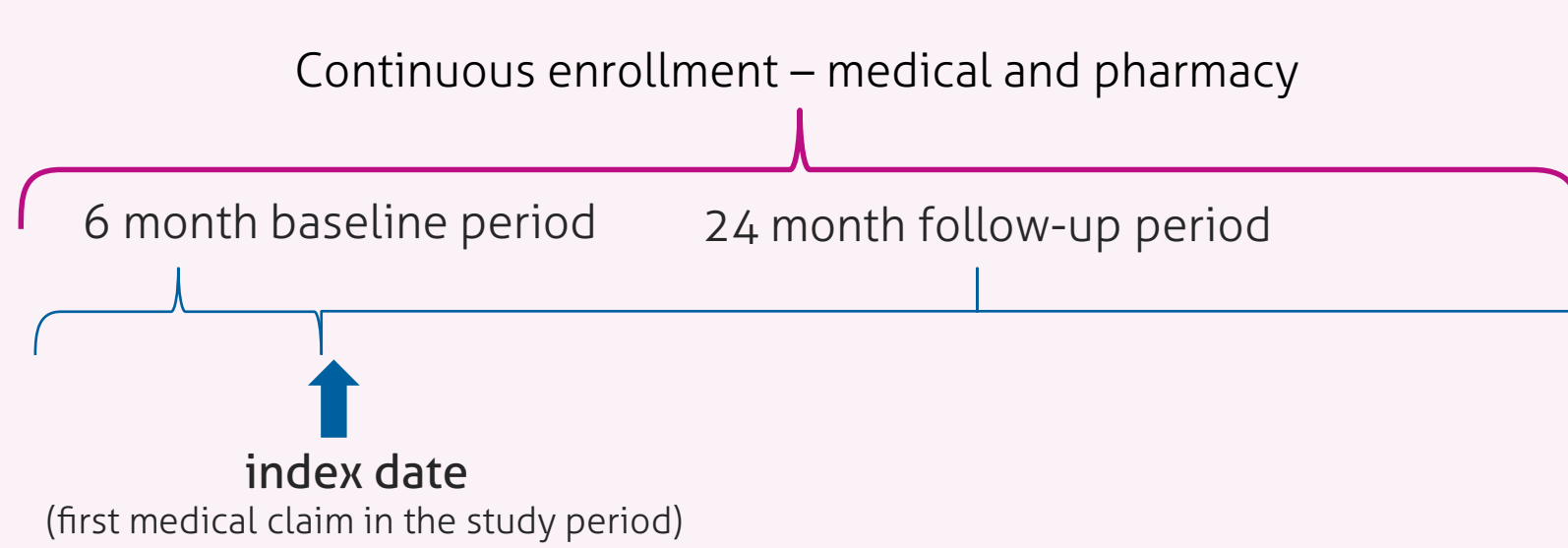
- Evaluate the prevalence of HK in patients with CKD and/or HF and its impact on health care utilization and costs in a diverse cohort of commercially insured patients.

Background

- Hyperkalemia (HK) is a concern for patients with chronic kidney disease (CKD), heart failure (HF), and those receiving products inhibiting the renin-angiotensin-aldosterone system (RAASi therapy).
- The prevalence of HK is unknown in the ambulatory population, but elevation of potassium occurs most frequently in patients with CKD or other illnesses that affect the renal excretion of potassium.
- This study presents an evaluation of how HK impacts healthcare resource utilization in patients with CKD, HF, and both conditions.

Methods

- This retrospective cohort study was conducted using medical and pharmacy claims.
- Patients were over 18 years of age, continuously enrolled for 6 months prior and throughout study period (January 1, 2014 to December 31, 2015), and had an ICD-9 or ICD-10 diagnosis code of stage III-V CKD and/or HF.
- Outcomes of health care utilization, including hospital length of stay and associated costs were assessed by subgroups – patients with CKD only, with HF only, and with both conditions.
- Median values were used as summary measures due to skewed data distribution.



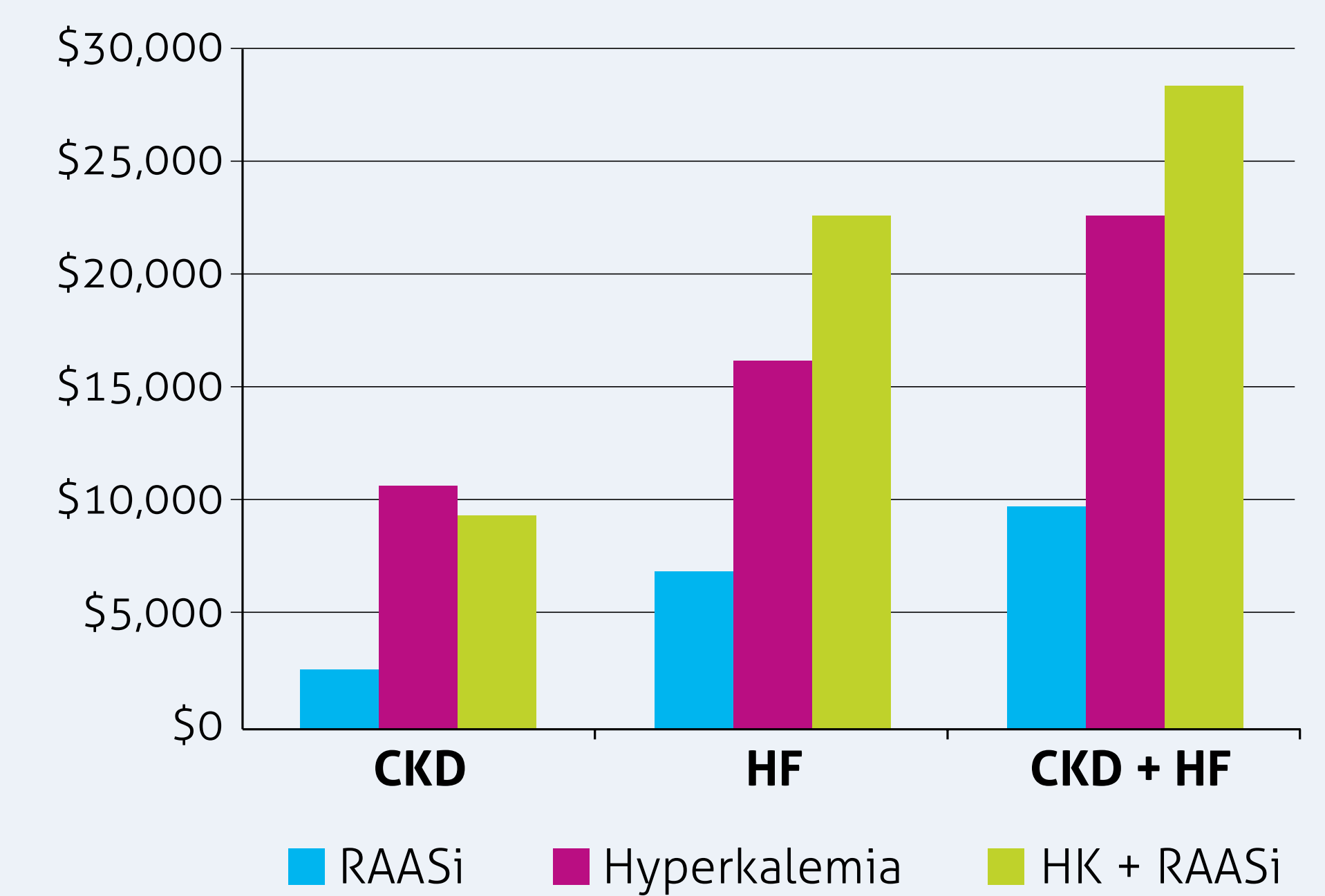
Disclosures

- This research was conducted by Magellan Rx Management, Newport, RI, with external funding by Relypsa Inc.

Results

- A total of 17,462 patients were included in the study
- In this real-world setting the presence of HK substantially increased the financial burden for patients with CKD, HF or both conditions. Also patients who utilize RAASi therapies and have HK are more costly than those who do not.
- Effective management of HK may lead to reduction in costs for patients with CKD, HF, or both conditions, including those receiving RAASi therapy.

Overall Medical Cost



Patients with CKD (medians reported for all measures)

	Measure	Patients with Hyperkalemia	Patients Using a RAASi	HK + RAASi
Medical Utilization	Inpatient Visits	1	1	1
	Length of Stay	4	4	6
	ED Visits		1	2
	Office/OP Visits	23	9	20
Medical Cost	Overall Cost	10,063	2,472	9,131
	IP Cost	5,069	7,483	11,299
	ED Cost	297	550	414
	Office/OP Cost	110	102	110
Overall Pharmacy Cost and Utilization	Fills per Patient	26	40	33
	Cost per Fill	15	18	12

Data collected over study period: January 1, 2014 to December 31, 2015.

Patients with HF

	Measure	Patients with Hyperkalemia	Patients Using a RAASi	HK + RAASi
Medical Utilization	Inpatient Visits	2	1	1
	Length of Stay	4	5	6
	ED Visits	2	2	2
	Office/OP Visits	19	14	24
Medical Cost	Overall Cost	15,475	7,210	23,238
	IP Cost	6,153	6,969	3,262
	ED Cost	239	398	313
	Office/OP Cost	108	107	109
Overall Pharmacy Cost and Utilization	Fills per Patient	25	34	36
	Cost per Fill	12	13	12

Data collected over study period: January 1, 2014 to December 31, 2015.

Patients with both CKD and HF

	Measure	Patients with Hyperkalemia	Patients Using a RAASi	HK + RAASi
Medical Utilization	Inpatient Visits	2	1	1
	Length of Stay	5	7	11
	ED Visits	2	2	2
	Office/OP Visits	28	20	26
Medical Cost	Overall Cost	23,189	9,997	27,671
	IP Cost	6,206	5,672	9,245
	ED Cost	244	260	305
	Office/OP Cost	114	107	110
Overall Pharmacy Cost and Utilization	Fills per Patient	30	42	36
	Cost per Fill	14	16	14

Data collected over study period: January 1, 2014 to December 31, 2015.

Conclusion

- In this real-world setting, hyperkalemia increased healthcare utilization and costs in patients with chronic kidney disease and heart failure.
- Assessment and comparison of median costs and LOS suggest effective hyperkalemia management may potentially reduce costs in patients with chronic kidney disease and/or heart failure, including those currently receiving RAASi therapy.

Limitations

- This study was based on a continuously enrolled, insured population from multiple regional health plans. Plans with fundamentally different reimbursement structures such as Medicaid may show different trends.
- Medical/pharmacy claims data do not capture services rendered but not billed such as drug samples and can be impacted by improperly billed items.