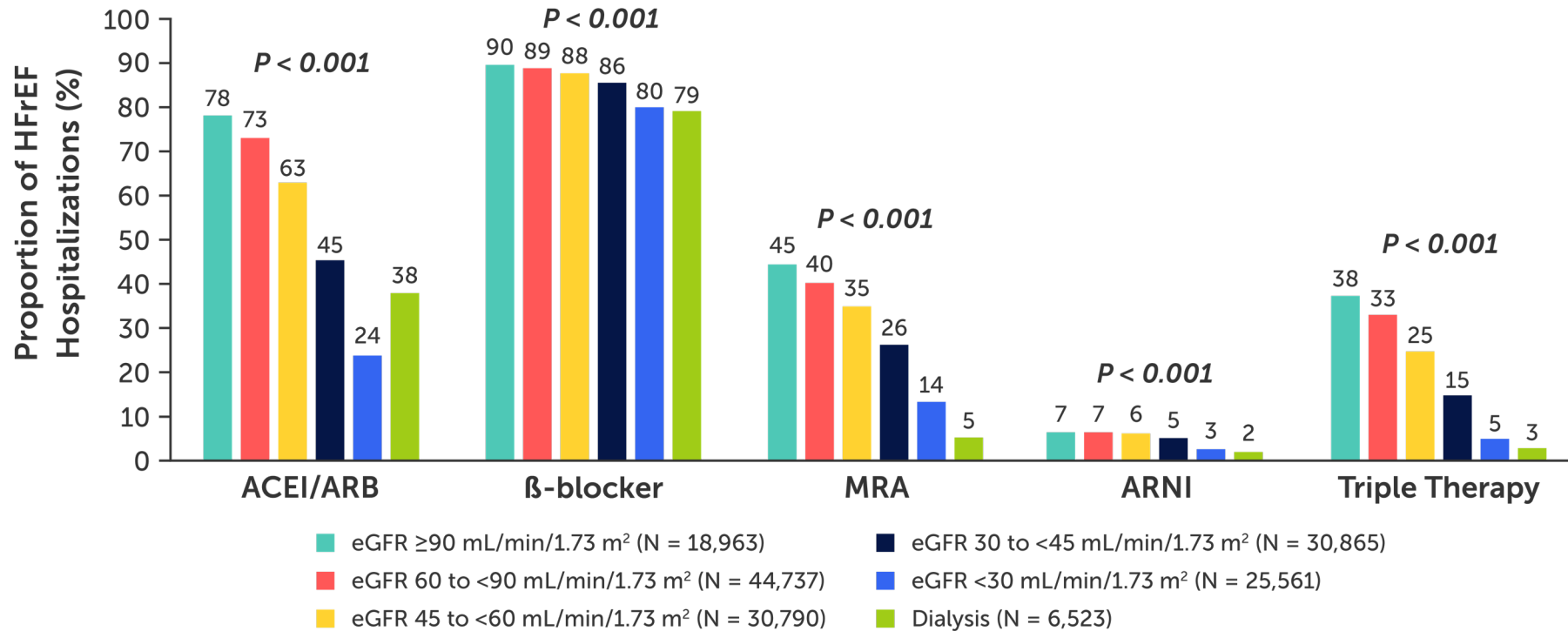


Low Rates of Evidence-Based HFrEF Medical Therapies at Discharge by eGFR



Despite elevated risk of mortality, patients with HFrEF and CKD are not optimally treated with GDMT, even when not contraindicated by severity of kidney dysfunction

ACEI, angiotensin-converting enzyme inhibitor; ARB, angiotensin receptor blocker; ARNI, angiotensin receptor-neprilysin inhibitor; CKD, chronic kidney disease; eGFR, estimated glomerular filtration rate; GDMT, guideline-directed medical therapy; HFrEF, heart failure with reduced ejection fraction; MRA, mineralocorticoid receptor antagonist. Patel RB, et al. *J Am Coll Cardiol.* 2021;78(4):330-343.



Potassium Binders in Patients on Dialysis

- 2016 – Patiromer¹
 - Clinical research center study
 - 6 patients with HK on hemodialysis (HD)
 - Results – Decrease in sK⁺ and sPO₄ levels and increased fecal potassium
- 2019 – Sodium Zirconium Cyclosilicate²
 - DIALIZE – Randomized (1:1), double-blind, placebo-controlled study
 - Patients with HK on dialysis
 - Results – Effective in reducing sK⁺ in patients on HD
- 2018 – First Real-World Study with Patiromer³
 - Retrospective cohort study using EHR data from a large dialysis provider in the US
 - Median follow-up 141 days; patiromer (n = 527), no potassium binder (n = 8,747)
 - Results – Patients had significant K⁺ reductions following patiromer initiation; the relative proportion of patients with severe HK (ie, >6.0 mEq/L) was reduced by 50% after patiromer initiation

EHR, electronic health records; HK, hyperkalemia; sK⁺, serum potassium; sPO₄, serum phosphate.

1. Bushinsky DA, et al. *Am J Nephrol*. 2016;44(5):404-410.

2. Fishbane S, et al. *J Am Soc Nephrol*. 2019;30(9):1723-1733.

3. Kovesdy CP, et al. *Kidney Int Rep*. 2018;4(2):301-309.



Hemodialysis Patient Case

58-year-old male

- Poorly treated hypertension
- Obese
- 2 prior myocardial infarctions
- CABG
- HFrEF (LVEF ~30%)

Medications

- Carvedilol
- Eplerenone
- Dapagliflozin
- Lisinopril
 - 30 mg reduced to 10 mg due to HK and then stopped

Goal

- Increase lisinopril
- Receive good dietary counseling

Recommendation

- Start patiromer to lower potassium
- Increase lisinopril to improve chances of survival

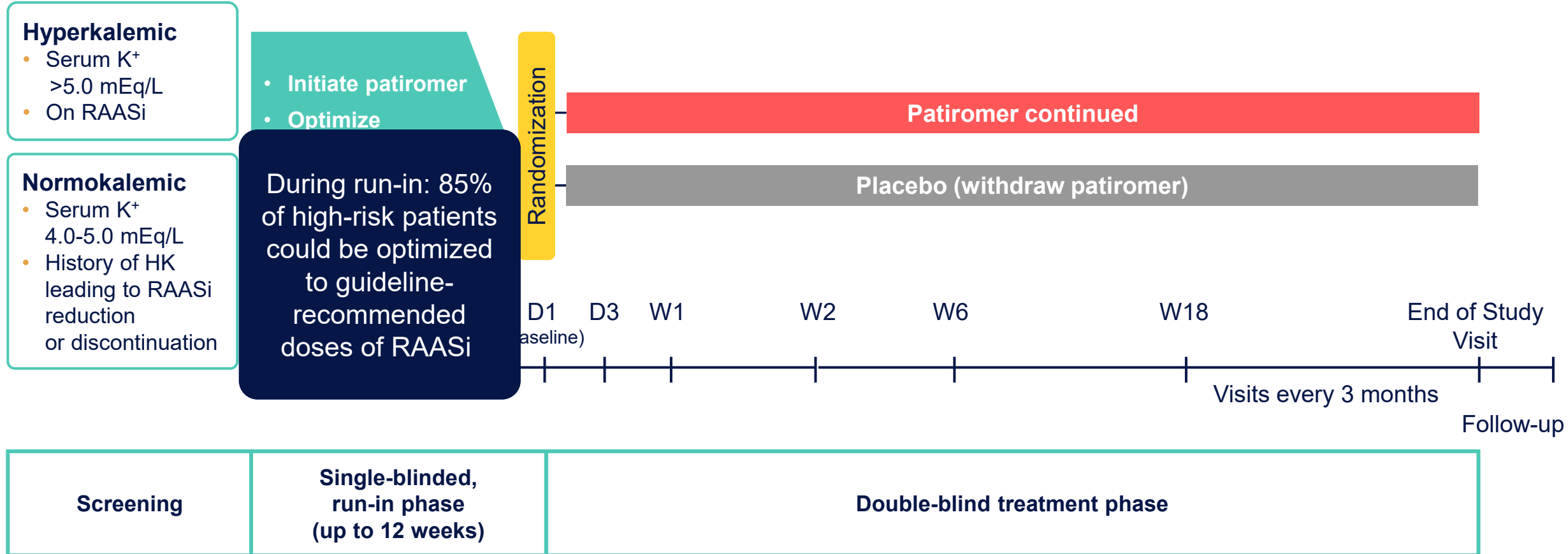


Quote by David Bushinsky, MD

*“...it’s critical to **educate people** that they have a **tool** that can **bind the potassium** and allow the use of these agents which will **improve cardiac and renal survival.**”*



DIAMOND Trial: Study Design



ACEI, angiotensin-converting enzyme inhibitor; ARB, angiotensin receptor blocker; ARNI, angiotensin receptor-neprilysin inhibitor; D, day; HK, hyperkalemia; RAASi, renin-angiotensin-aldosterone system inhibitor; W, week.

Follow-up after the end-of-study visit included a K⁺ assessment visit within 2 weeks of patiromer/placebo discontinuation and/or follow-up phone call at least 2 weeks after the end-of-study visit.

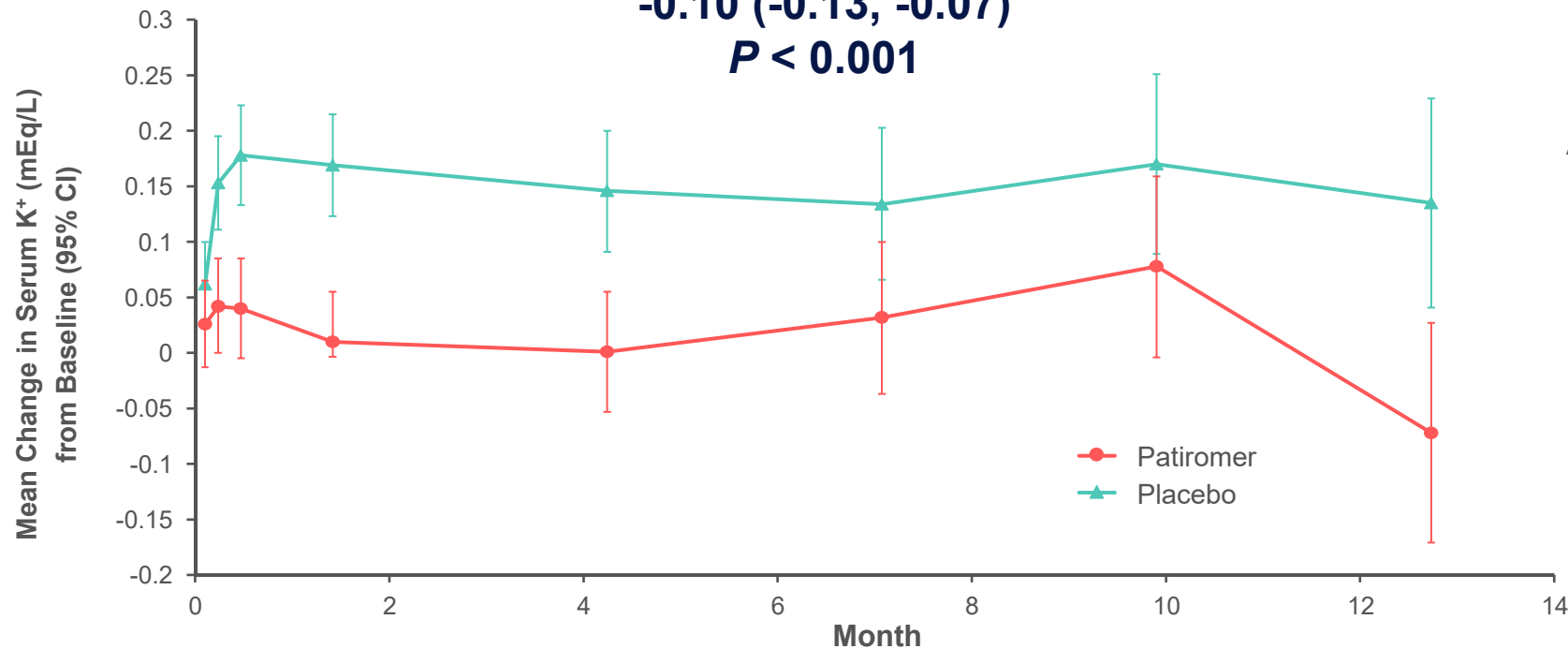
^a ≥50% recommended dose of ACEI/ARB/ARNI.

^b 50 mg of MRA (spironolactone or eplerenone).

Butler J, et al. *Eur J Heart Fail.* 2022;24(1):230-238.

DIAMOND Trial Primary Endpoint: Change in Serum K⁺ Levels from Baseline (Randomization)

Between group difference at EoS:
-0.10 (-0.13, -0.07)
P < 0.001



Adjusted mean change (95% CI)
from randomization to EoS

+0.13 (0.09, 0.16)

+0.03 (-0.01, 0.07)

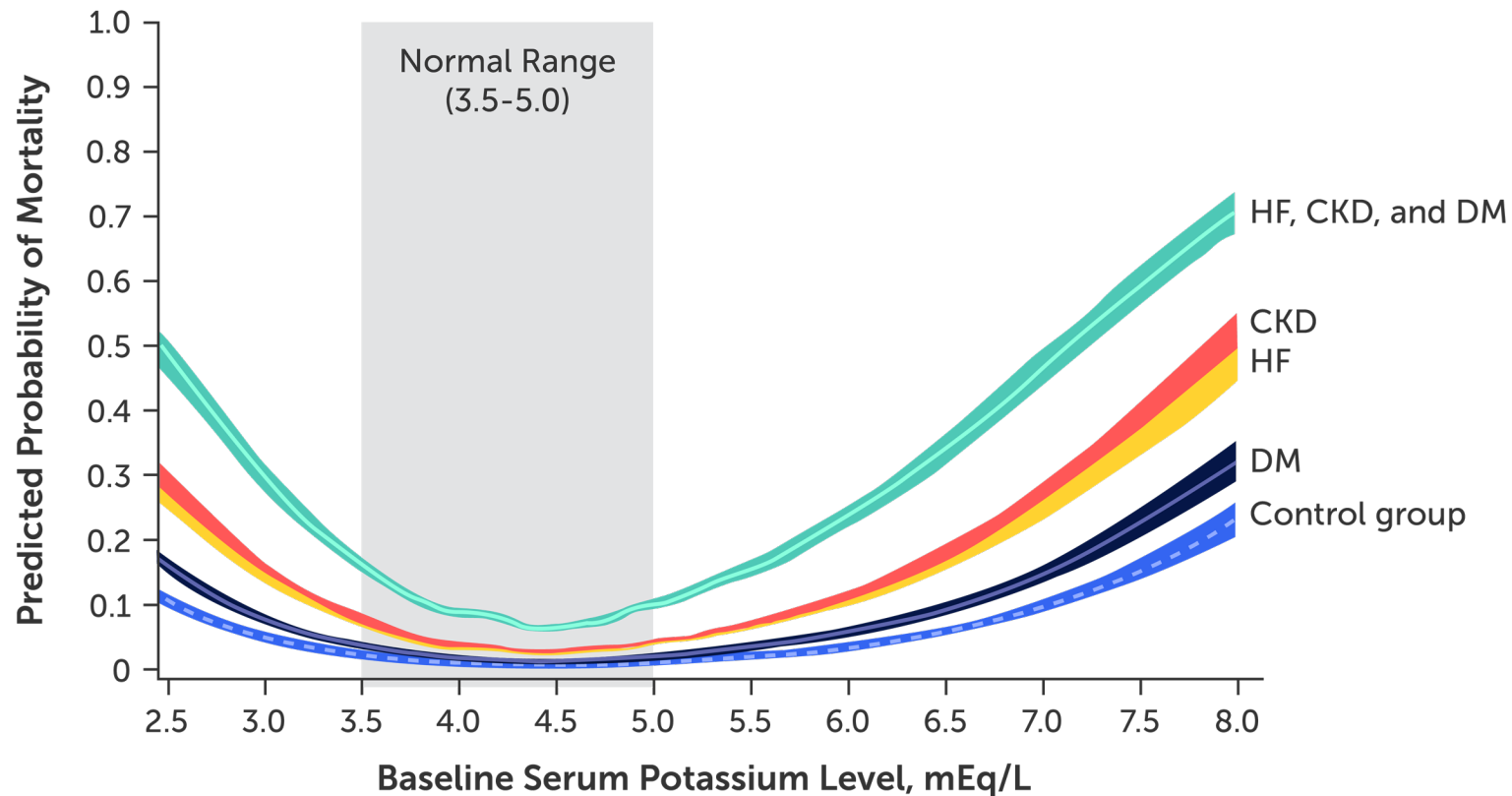
n	Day 3	Week 1	Week 2	Week 6	Week 18	Week 30	Week 42	Week 54
Patiromer (n = 439)	409	406	402	376	273	183	104	66
Placebo (n = 439)	416	409	397	361	270	184	106	74

EoS, end of study.

Butler J, et al. *Eur J Heart Fail.* 2022;24(1):230-238.



Association of Serum Potassium with All-Cause Mortality in Heart Failure, Chronic Kidney Disease, and/or Diabetes



Key Takeaway: Lars Lund, MD

“Hyperkalemia is a big problem in heart failure and it’s now treatable with novel potassium binders.”

“With potassium binders there’s data to support enablement of MRA use, and this enablement will translate into improved outcomes for our patients.”

