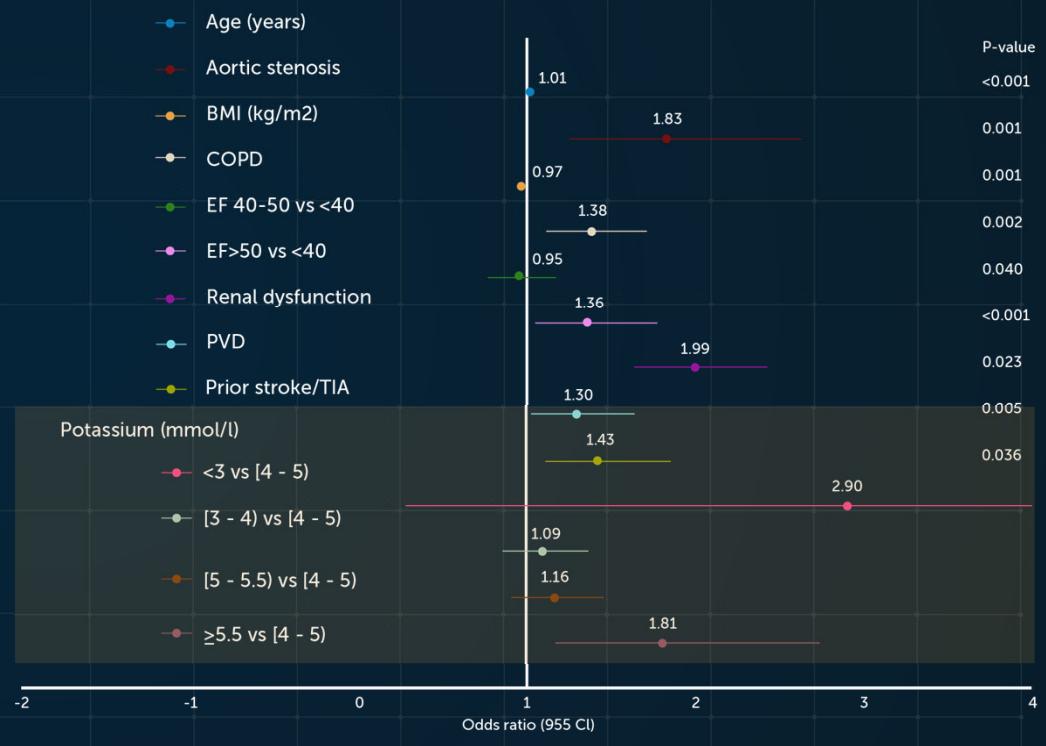
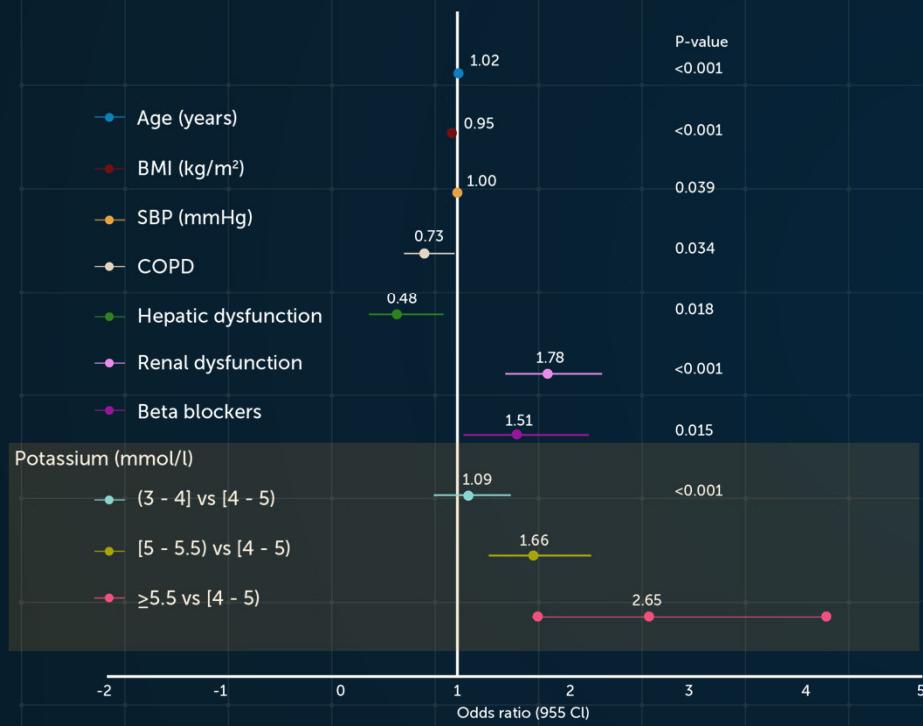


# Potassium Binders in Heart Failure: Who, When, & How

# The Dilemma of RAASi and Hyperkalemia

- Swedish registry of new MRA users (N = 13,726)
  - 47% discontinued MRA after hyperkalemia
  - 76% were not reintroduced to therapy
- Leads to heart failure worsening

# ESC-HFA-EORP Heart Failure Long-Term Registry



# Patient Case: The Zone of Uncertainty

- FP is a 69-year-old Italian man
- Referred to outpatient heart failure (HF) team after 2 recent hospitalizations for acute decompensated HF
- Hyperkalemia documented in EMR as an “allergy” to ACE inhibitors

## Past Medical History

Hypertension

Heart failure with reduced ejection fraction

- NYHA Class III EF 25% s/p AICD

Chronic kidney disease stage 3A

Diabetes mellitus

Osteoarthritis

## Labs

Serum creatinine: 1.6 mg/dL

Estimated GFR: 45 mL/min/m<sup>2</sup>

Potassium: 4.9 mEq/L

NT-proBNP: 4500 pg/mL

Digoxin level: 0.4 ng/mL

## Vitals

BP: 144/96

HR: 76

## Medications

Carvedilol 12.5 mg BID

Hydralazine 25 mg TID

Isosorbide dinitrate 20 mg TID

Naproxen 500 mg BID as needed

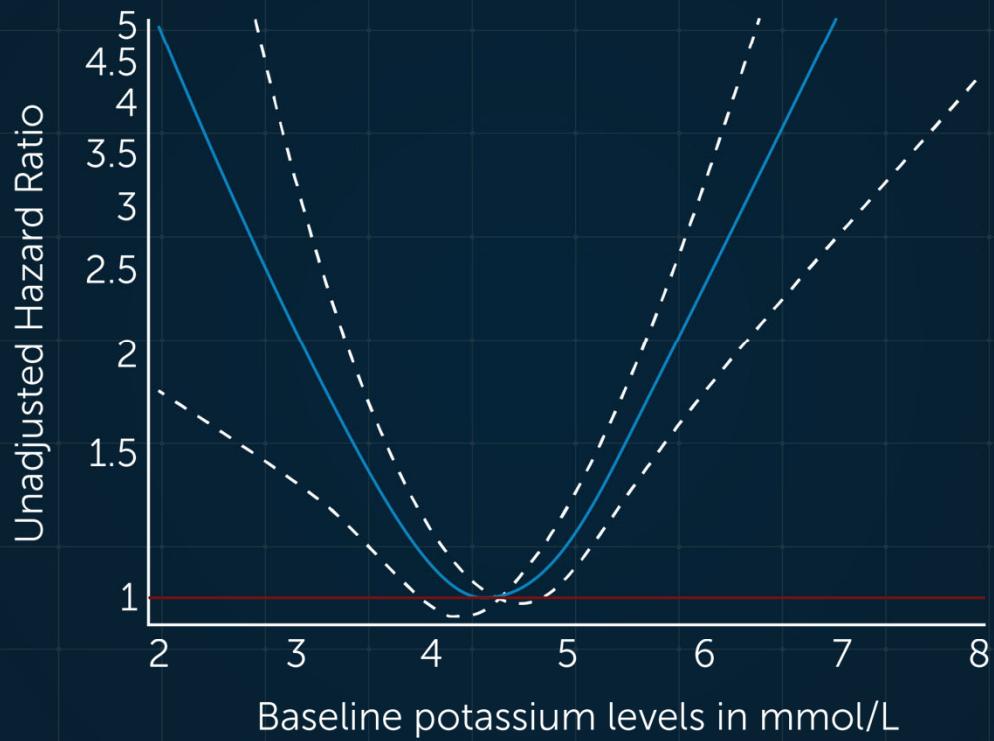
Digoxin 125 mcg once daily

Torsemide 40 mg BID

# Hyperkalemia



# Serum Potassium and All-cause Death



# Challenges of Managing Hyperkalemia

- Restrictive diets may not be sustainable
- Up-titration of loop diuretics may worsen renal function
- Step-down or sub-optimal RAASi dosing leads to poor long-term outcomes

# The Zone of Uncertainty: 1 Week Later

- After dietary counseling, discontinuation of naproxen and digoxin, and pre-authorization for patiromer, enalapril 5 mg BID initiated
  - FP reports “feeling great” with the following labs and vitals during clinic visit

## Labs

Serum creatinine: 1.6 mg/dL → 1.7 mg/dL  
Estimated GFR: 45 mL/min/1.73m<sup>2</sup> → 40 mL/min/1.73m<sup>2</sup>  
Potassium: 4.9 mEq/L → 5.3 mEq/L  
NT-proBNP: 4500 pg/mL → 2700 pg/mL

## Vitals

BP: 144/96 → 132/84  
HR: 76 → 74

## Medications

Carvedilol 12.5 mg BID  
Hydralazine 25 mg TID  
Isosorbide dinitrate 20 mg TID  
Enalapril 5 mg BID  
Torsemide 40 mg BID

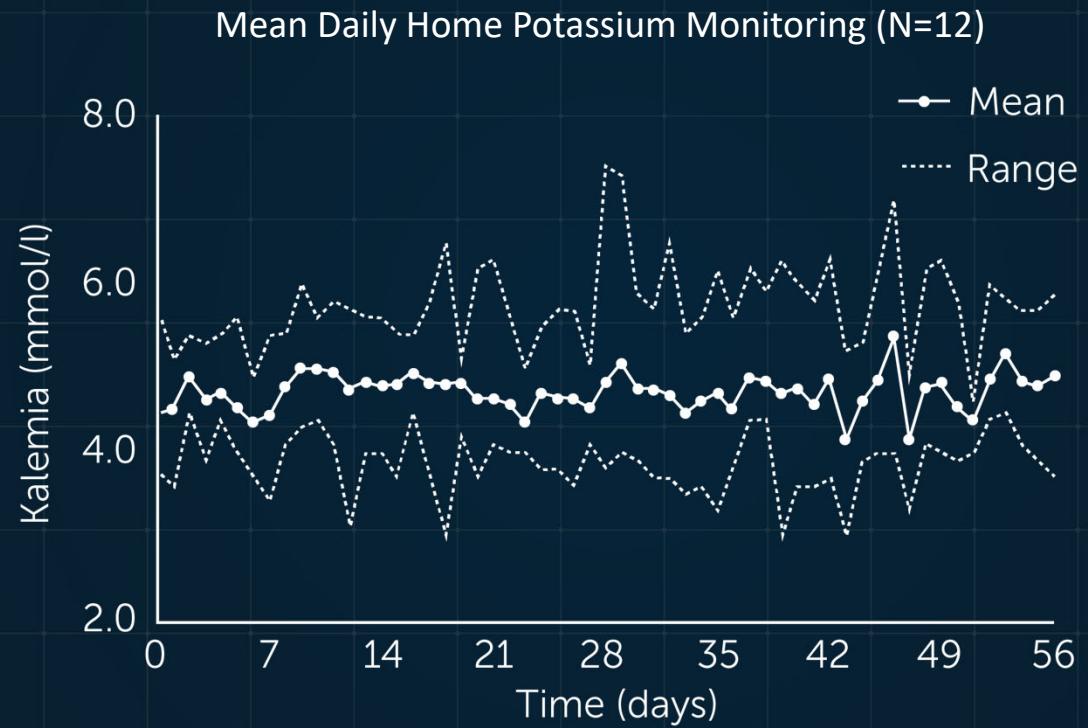
# New Potassium Binders

- Patiromer
  - Spherical polymer
  - $\text{Ca}^{2+}$  exchanged for  $\text{K}^+$  in colon
  - Side effect: hypomagnesemia
- Sodium zirconium cyclosilicate (SXC) of ZS-9
  - $\text{Na}^+$  exchanged for  $\text{K}^+$
  - Begins working in the small intestine with measurable  $\text{K}^+$  binding in colon
  - Side effects: edema, hypokalemia

# Patiromer and SXC

- Not approved to treat emergent hyperkalemia
- Only for chronic management of hyperkalemia
- Take 2-3 hours before or after other medications
- Patiromer can be taken with or without food
- May be able to loosen low-potassium diet restrictions
  - Educate patients to be judicious with food choices

# Daily Potassium Variations in HFrEF



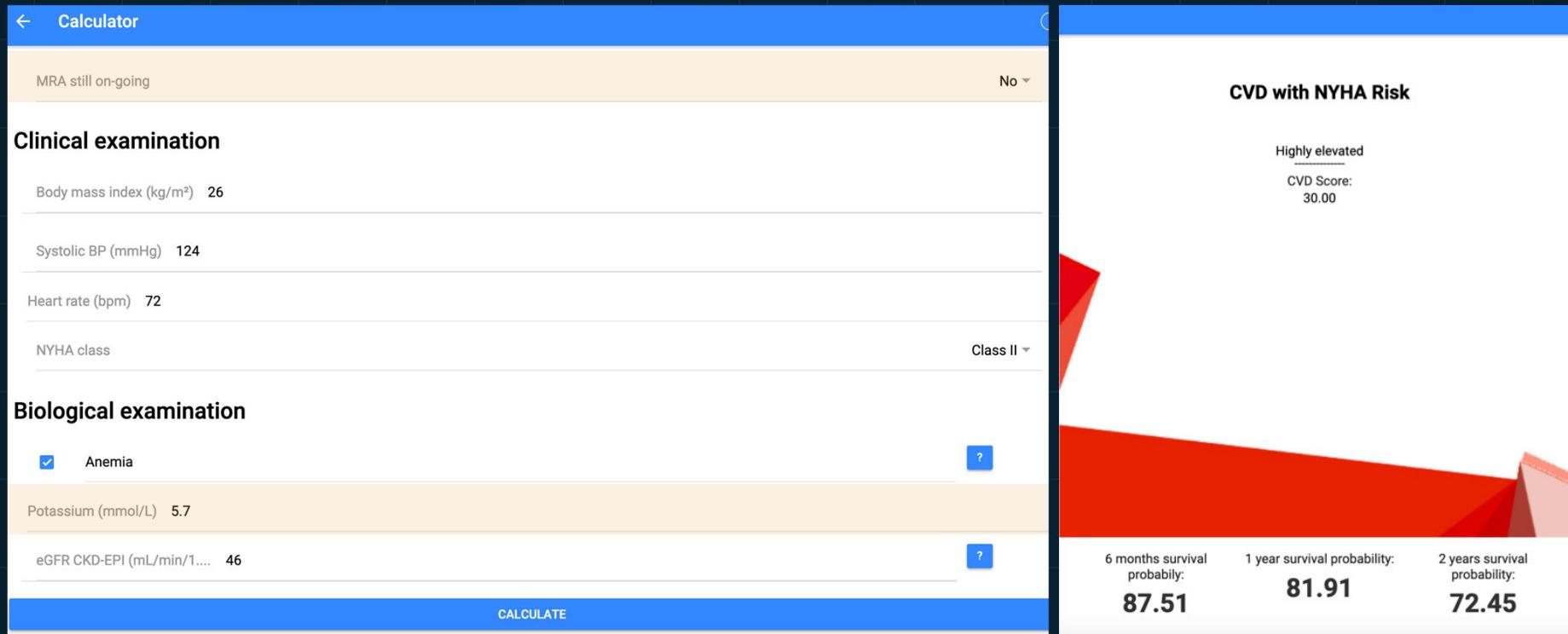
Rossignol P, Fay R, Girerd N, Zannad F. *ESC Heart Fail.* 2020;7(3):1257-1263.

# Clinical Pearls

- Regularly monitor serum potassium
- Use potassium binders
- Use an online calculator

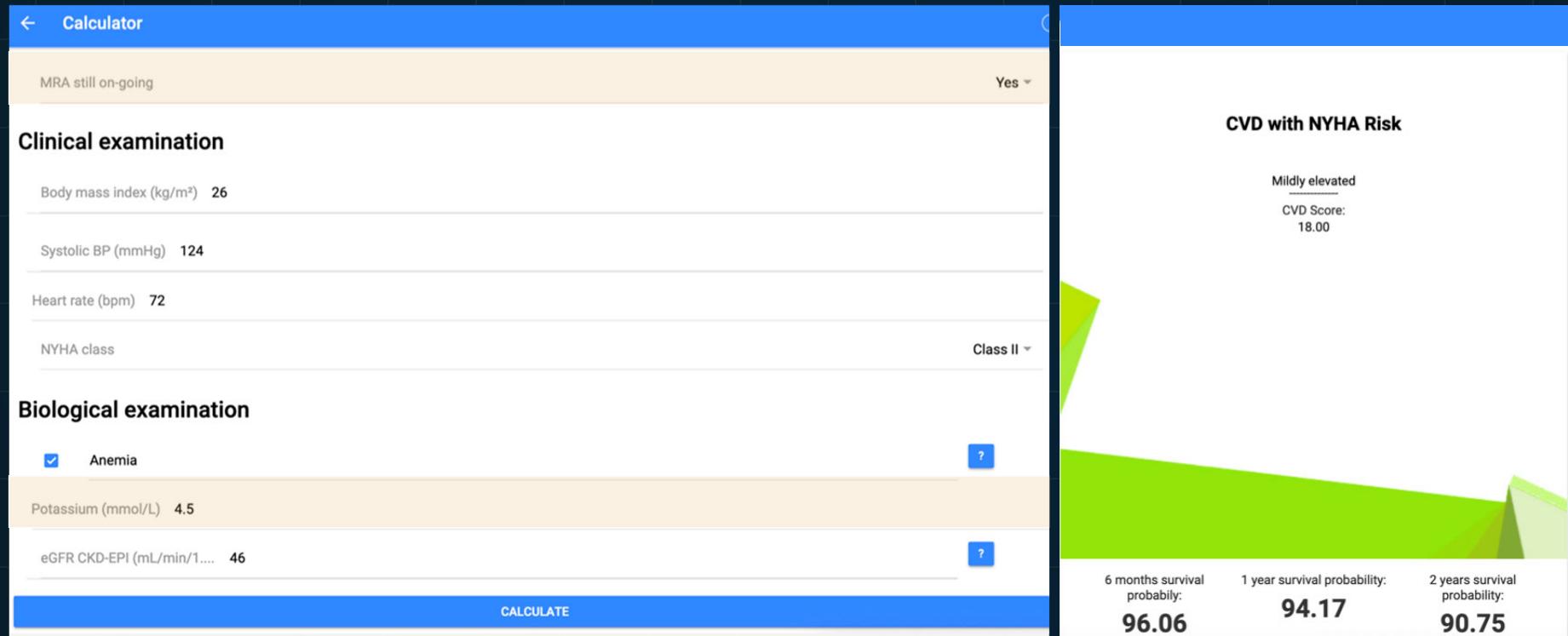
# 68-Year-Old Man

- History of HF



# 68-Year-Old Man

- History of HF



# Take-home Messages

- Do not stop RAASi therapies if you can avoid it
- Educate patients about diet
  - Provide lists of foods that are high and low in potassium