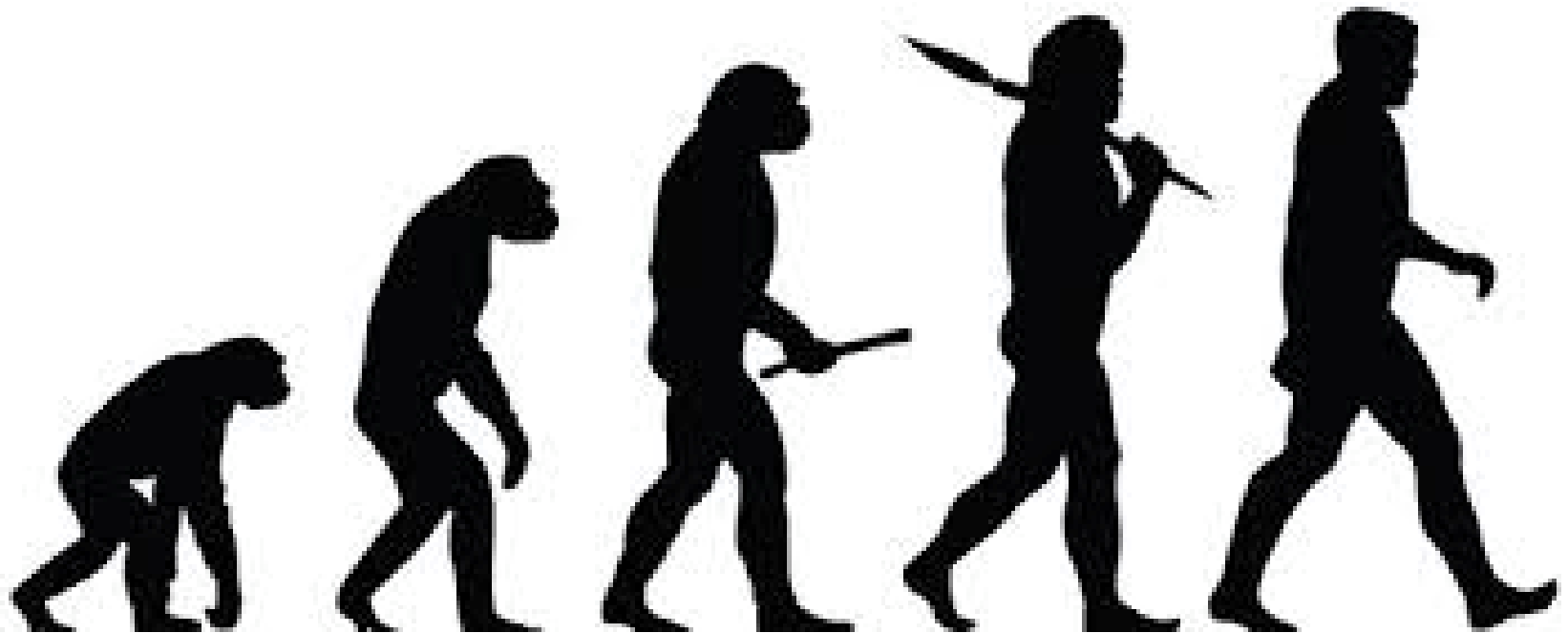


Frailty as New Risk Factor for Chronic Kidney Disease

- ▶ Sheldon Tobe MD, MSc (HPTE), FRCPC, FACP, FASH
- ▶ NOSM/HSF Chair in Aboriginal and Rural Health Research
 - ▶ Division of Nephrology
 - ▶ Sunnybrook Health Sciences Centre
 - ▶ University of Toronto

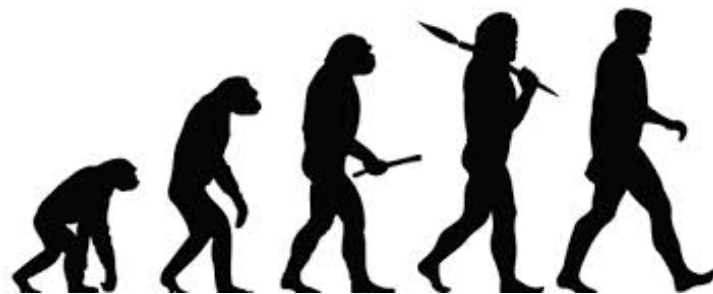
- Faculty: Sheldon Tobe
- **Relationships with commercial interests:**
 - - **Grants/Research Support:** CIHR, AbbVie, Bayer
 - - **Speakers Bureau/Honoraria:** Servier, Pfizer, Valeant
 - - **Consulting Fees:** AbbVie (SONAR Canadian Lead)
 - - **Other:** None

Frailty





A picture of Bill Clinton on the following day, with an abrasion on his nose as a result of the fall.



Frailty and CVD Objectives

- Define the definition of Frailty
 - Frail Index
- Discuss the demographics of Frailty
- Describe the association of Frailty and CVD
- Describe improving CVD outcomes in the Frail Elderly
- Update SPRINT and Frailty

Frailty

- A state of vulnerability
- Comes from French *frêle* 'of little resistance'
- Depletion of homeostatic reserve
- .46b in 2004 to 2b by 2050 (age 65+)
- 25-50% of those 85+ are frail
- Greater risk of falls, delirium, disability

Panel 2: The five phenotype model indicators of frailty and their associated measures

Weight loss

Self-reported weight loss of more than 4.5 kg or recorded weight loss of $\geq 5\%$ per year

Self-reported exhaustion

Self-reported exhaustion on US Center for Epidemiological Studies depression scale¹³
(3-4 days per week or most of the time)

Low energy expenditure

Energy expenditure < 383 kcal/week (men) or < 270 kcal/week (women)

Slow gait speed

Standardised cutoff times to walk 4.57 m, stratified by sex and height

Weak grip strength

Grip strength, stratified by sex and body-mass index

Frailty in CVD

- 25 - 50% of patients with CVD have frailty
- Inflammation leads to loss of muscle mass
- Insulin Resistance and Vit D deficiency contribute
- CVD also contributes

Association of CVD and Frailty Co-Prevalence

Study	Odds Ratio for both
Zutphen Elderly Men's study	4.1
CV Health Study	2.8
Beaver Dam Eye Study	1.43
Women's Health and Aging Studies	2.72

Patients with CVD or stroke were at the highest risk of developing frailty

When to Measure Frailty

- Predict elderly pt's risk of M&M with invasive procedures, ie CV surgery
- Predicting risk in heart failure

How to Measure Frailty

- Cardiovascular Health Study scale (5 items)
 - **Slow gait on 5 m gait speed**
 - Weak handgrip
 - Physical inactivity by questionnaire
 - Exhaustion by questionnaire
 - Unintentional wt loss of 10+ lbs over 1 year
 - Also : cognitive impairment and mood disturbance

- 3/5 = Frail

How to Measure Frailty

- Canadian Health and Aging Frailty index
 - 70 items
 - Final scale from 1 to 7
 - 1= fit, 7 severely frail
- Calgary Cardiac and Cognition scale
 - Patients admitted for cardiac cath (5 items)
 - Cognitive (trail making test)
 - Mood disturbance
 - Tandem balance
 - BMI < 21 or > 30
 - Living alone

Frailty Index

- Derived from the Canadian Study of Health and Aging
- 10,263 people (mean age 82) followed 5 years
- Number of deficits in 92 variables
- Worse outcomes with more deficits

5-meter gait speed test

In an unobstructed area, position the patient with his/her feet behind and just touching the 0-meter start line

Instruct to "Walk at your comfortable pace" until a few steps past the 5-meter mark (should not start to slow down before)

Begin each trial on the word "Go"

Start the timer with the first footfall after the 0-meter line

Stop the timer with the first footfall after the 5-meter line

Repeat 3 times and record average, allowing sufficient time for recuperation between trials

Frailty is defined as an average time taken to walk the 5-meter course ≥ 6 seconds*

Primary Prevention of CVD in Elderly

- Best evidence is for statins and BP control
- Statin: Prospective Study of Pravastatin in the Elderly at Risk (PROSPER)
 - 5804 mean age 75, 3.2 year study
 - Prava 40 vs placebo
 - 2.1% reduction of CHD death, nonfatal MI/Stroke,,
NNT 48

BP Reduction

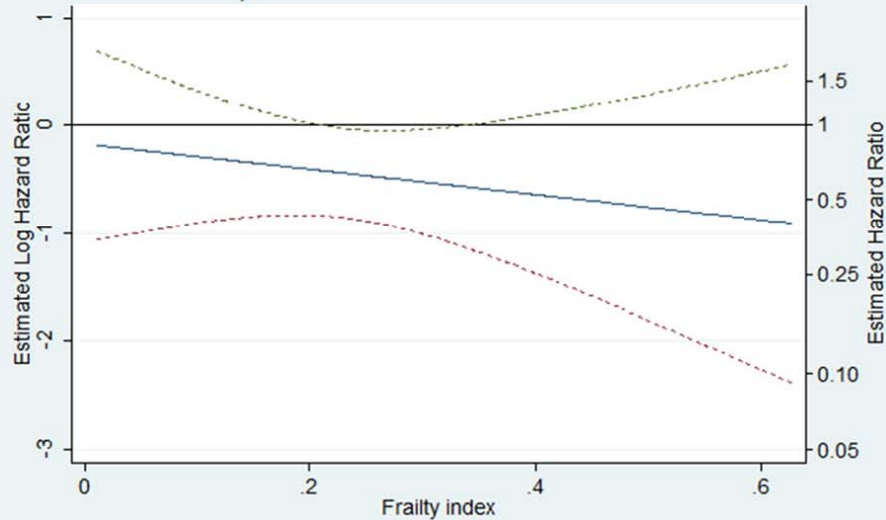
- SHEP: age 60+ targeting BP of < 140
- HYVET
 - All cause mortality reduced 21%
 - CHF 64%
- SPRINT age 75+
 - Primary event 7.7% vs 10.9% HR 0.67

HYVET and Frailty

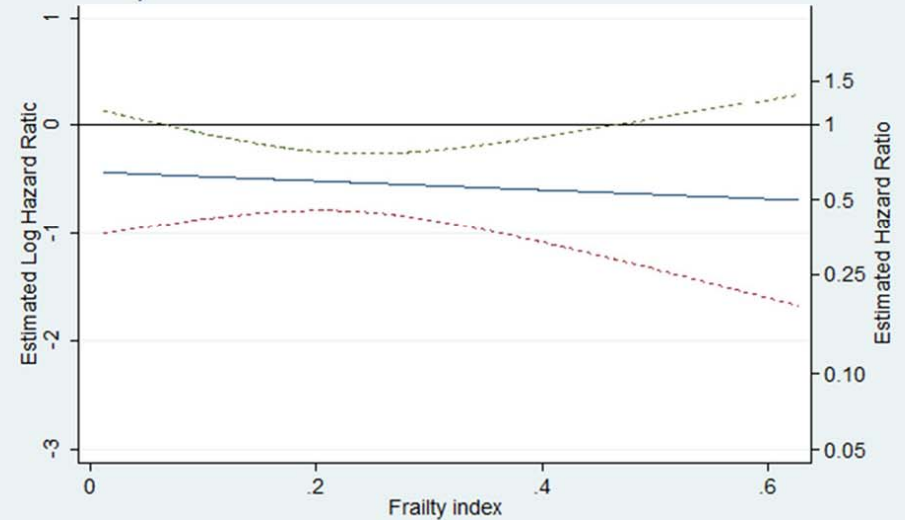
- HYVET: inapamide perindopril vs placebo
- Age 80+
- 3845 in total (2656 consented to FI)
- Frailty index calculated at BL (60 items)

HYVET Results by Frailty Index

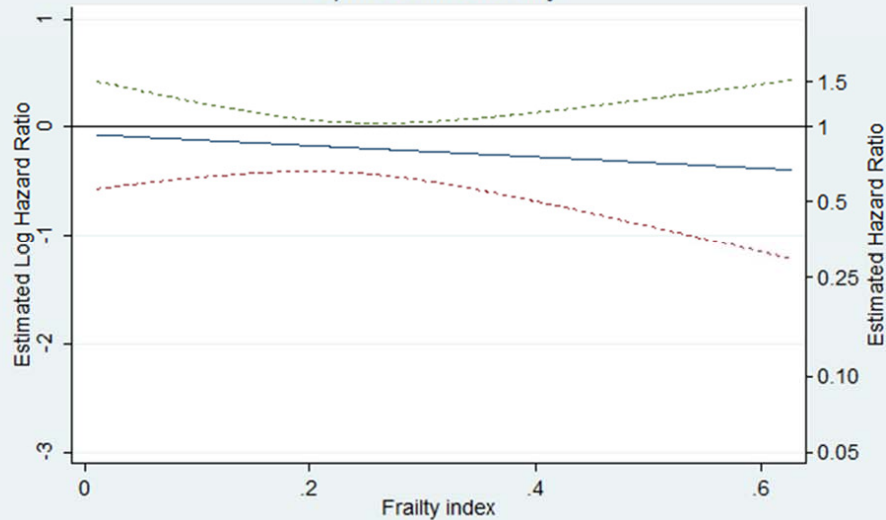
a) Fatal and non-fatal strokes



b) Fatal and non-fatal cardiovascular events



c) Total mortality



— Log Hazard Ratio - - - 95% Confidence Limits

Research Article

Characterizing Frailty Status in the Systolic Blood Pressure Intervention Trial

Nicholas M. Pajewski,¹ Jeff D. Williamson^{2,*} William B. Applegate,² Dan R. Berlowitz,^{3,4} Linda P. Bolin,⁵ Glenn M. Chertow,⁶ Marie A. Krousel-Wood,^{7,8,9} Nieves Lopez-Barrera,¹⁰ James R. Powell,¹¹ Christianne L. Roumie,^{12,13} Carolyn Still,^{14,15} Kaycee M. Sink,² Rocky Tang,¹⁶ Clinton B. Wright,¹⁷ and Mark A. Supiano^{18,19,*}; for the SPRINT Study Research Group

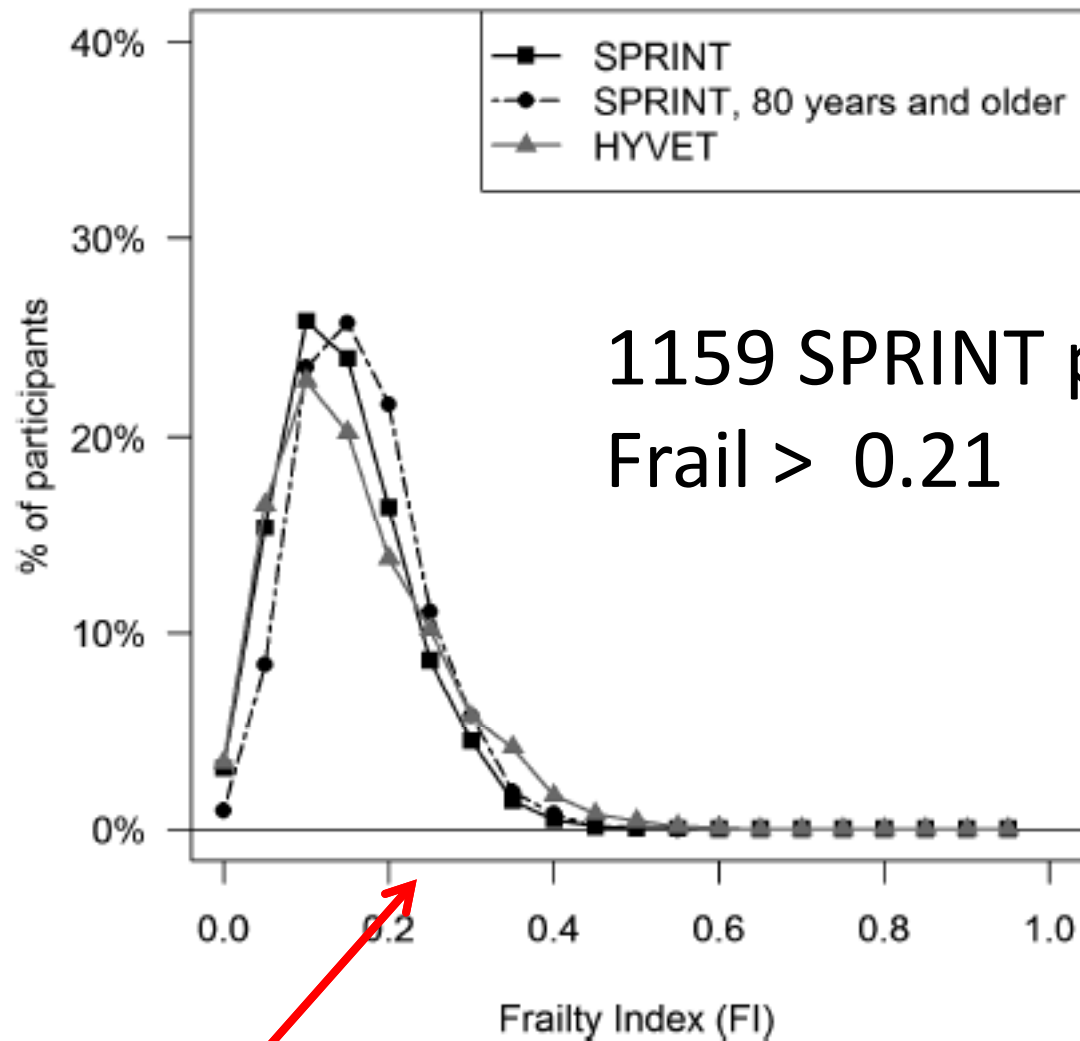
SPRINT: Frailty Substudy

- 9361 target < 140 vs < 120 mmHg
- Age 50+, SBP 130-160
- Increased CV risk
- Created a Frailty index: 37 items
 - Cognitive function
 - Depressive symptoms
 - Gait speed

Results

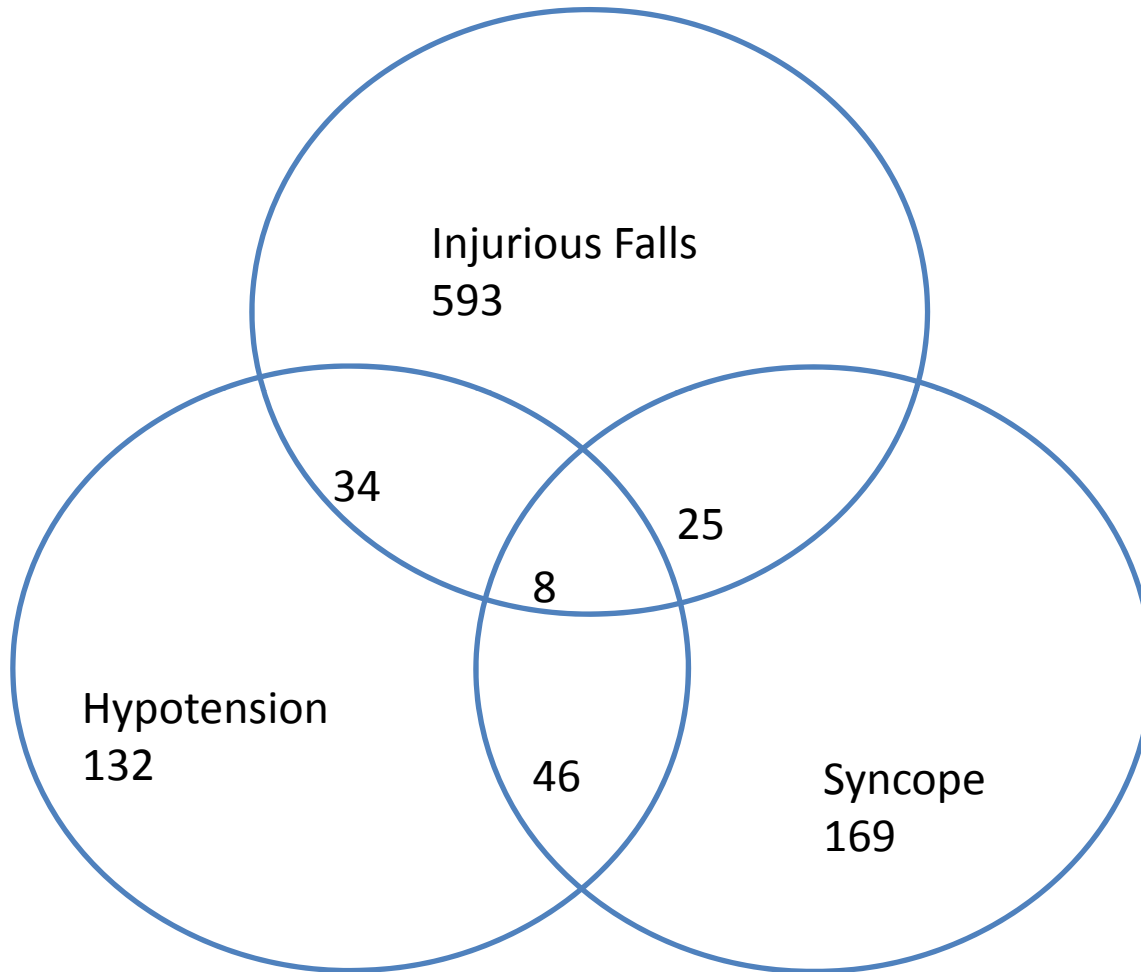
- 2560 of all SPRINT patients are frail on their scale
- 1159 SPRINT participants were age 80+

Frailty Index SPRINT vs HYVET



1159 SPRINT patients were 80+
Frail > 0.21

New SPRINT Information



Lawrence Fine: Communication at ASH 2016

Summary

- Frailty is common in the elderly but also occurs in the 'young elderly'
- Frailty is associated with increased CV risk
- CVD is also a risk factor for Frailty
- Frail patients respond to BP lowering and Statins
- Because of increased risk of falls etc, use caution with BP lowering

Thank You



C-CHANGE PEARLS

Clinical Practice Guidelines Workshop



Friday, September 16, 2016

Glasgow Hills Resort and Golf, New Glasgow, PEI

Focus: Management of patients with multi-morbidities; heart failure and hypertension; hypertension and diabetes

Approved for 4.5 Mainpro-M1 credits



Health PEI
One Island Health System