

LA FRAGILITÉ GÉRIATRIQUE CHEZ LE PATIENT INSUFFISANT CARDIAQUE.

Kim Laflamme

*Infirmières praticiennes spécialisées aux soins aux adultes
Professeure invitée à l' Université de Montréal.*



**INSTITUT DE
CARDIOLOGIE
DE MONTRÉAL**

Aucun conflit d'intérêts

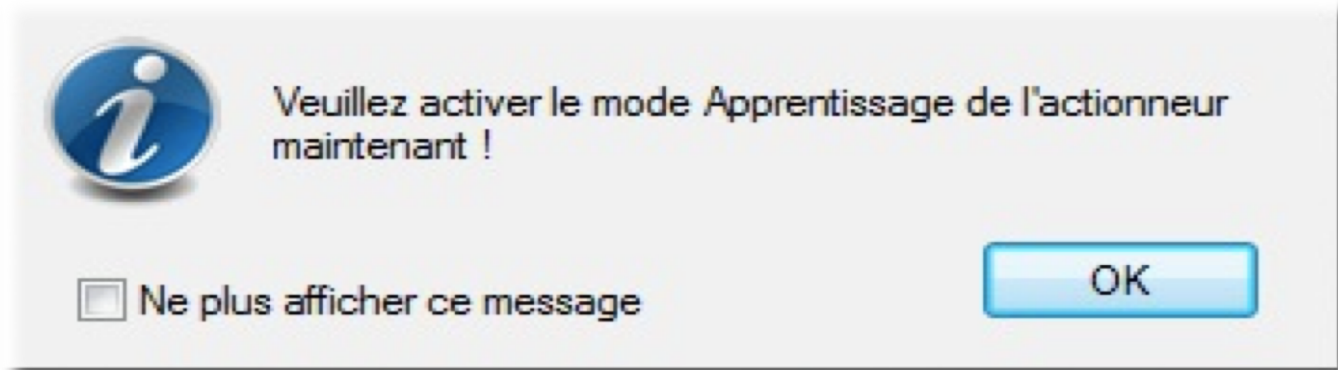


**INSTITUT DE
CARDIOLOGIE
DE MONTRÉAL**

APPILÉE A
Université
de Montréal

AVERTISSEMENTS

Cette présentation s'adresse à des Infirmières averties. Elle peut contenir des passages forts intéressants.



OBJECTIFS DE LA PRÉSENTATION

- Évaluer la fragilité gériatrique chez l'insuffisant cardiaque;
- Déterminer l'influence de la fragilité gériatrique en insuffisance cardiaque;
- Identifier les défis de la fragilité gériatrique en regard du plan de traitement de l'insuffisance cardiaque.



MONSIEUR TREMBLAY

♂ 78 ans veuf x 2 ans

- CMPI VG 30 % x 2019/01
 - En cours optimisation tx IC
- Nstemi 1998+2018^{/04}
 - SP revascularisation incomplète
CTO CD , IVA 75 % → 0% (DES)
CX 80 % → 0% (DES)
- IRC DFGE 25
- HTA + DLPD + DB+ (Neuropathie+)
- Anémie NN (Hb base 110)
- HBP+



EST-CE QUE MONSIEUR TREMBLAY EST À RISQUE DE FRAGILITÉ GÉRIATRIQUE ?



Multimorbidity Burden and Adverse Outcomes in a Community-Based Cohort of Adults with Heart Failure

Mayra Tisminetzky, MD, PhD,^{*†‡} Jerry H. Gurwitz, MD,^{*†‡} Dongjie Fan, MSPH,[§] Kristi Reynolds, MPH, PhD,[¶] David H. Smith, PhD, RPh,^{||} David J. Magid, MD, MPH,^{**} Sue Hee Sung, MPH,[§] Terrence E. Murphy, PhD,^{††} Robert J. Goldberg, PhD,^{**} and Alan S. Go, MD^{§†‡§§¶¶}

Table 1. Characteristics of Adults with Heart Failure, Overall and Stratified According to Morbidity Burden

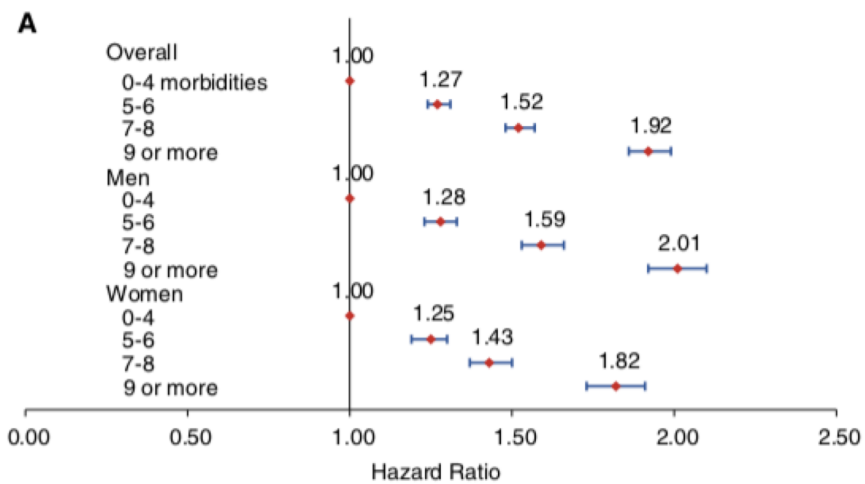
Variables	Overall, N = 114,553	0–4 morbidities, n = 30,282	5–6 morbidities, n = 33,594	7–8 morbidities, n = 30,764	≥9 morbidities, n = 19,913
Age, median (interquartile range)	75.0 (65.0–83.0)	66.0 (56.0–77.0)	75.0 (66.0–83.0)	78.0 (70.0–84.0)	80.0 (73.0–85.0) ¹
Age, %					¹
55–64	15.1	24.3	15.5	10.7	7.0
65–74	24.6	24.2	26.6	24.5	22.1
75–84	32.0	19.8	32.5	37.4	41.2
85–94	18.0	9.1	17.2	22.4	26.3
≥95	1.7	1.2	1.8	1.9	1.8
Female, %	45.9	36.1	44.2	50.3	56.8 ¹
White, %	73.5	67.6	73.2	75.8	79.1 ¹
Heart failure type, %					
Preserved ejection fraction	31.8	22.1	31.2	36.4	40.4
Reduced ejection fraction	21.3	29.6	20.8	17.4	15.5
Borderline reduced ejection fraction	8.9	9.2	9.0	8.9	8.3
Current or former smoker, %	39.8	35.9	38.4	41.2	45.8 ¹



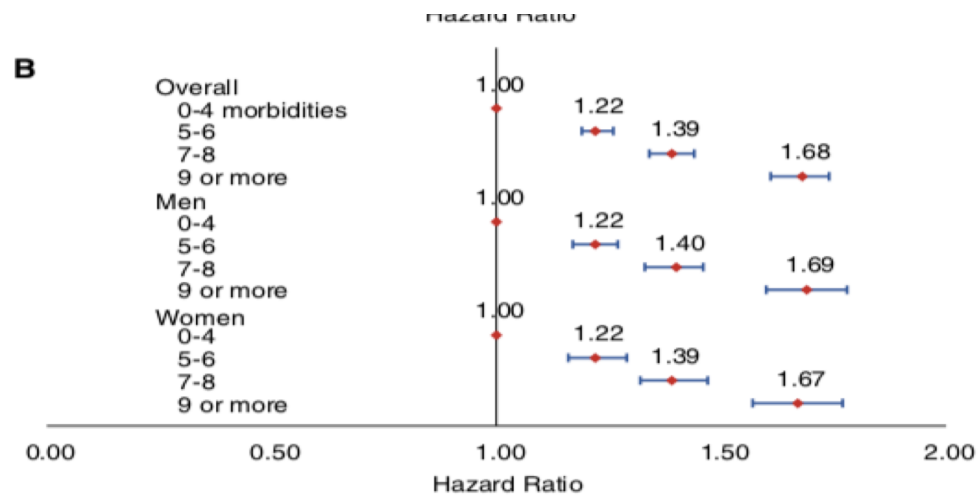
Table 2. Frequency of Chronic Conditions in Adults with Heart Failure, Overall and Stratified According to Morbidity Burden

Variable	Overall, N = 114,553	0–4 Morbidities, n = 30,282	5–6 Morbidities, n = 33,594	7–8 Morbidities, n = 30,764	≥9 Morbidities, n = 19,913
Medical history					
Acute myocardial infarction	11.0	5.7	8.7	13.0	19.9 ¹
Unstable angina pectoris	4.3	1.5	3.3	5.3	8.9 ¹
Coronary heart disease	18.5	8.4	14.5	22.3	34.9 ¹
Ventricular tachycardia or fibrillation	2.6	1.5	2.0	2.8	5.0 ¹
Mitral or aortic valve disease	31.4	16.5	25.7	37.1	54.6 ¹
Atrial fibrillation	33.1	18.3	29.5	38.7	52.6 ¹
Ischemic stroke or transient ischemic attack	5.1	1.2	3.0	6.0	13.2 ¹
Peripheral arterial disease	5.5	0.9	2.9	6.8	15.2 ¹
Diabetes mellitus	40.8	16.3	40.2	52.0	61.6 ¹
Dyslipidemia	76.7	51.8	79.1	87.6	93.7 ¹
Hypertension	77.6	46.9	81.8	91.4	95.6 ¹
Chronic kidney disease	50.7	19.8	47.7	66.7	78.0 ¹
Hospitalized bleeds	4.7	1.0	2.4	5.3	13.1 ¹
Anemia	36.0	11.4	29.3	48.0	66.0 ¹
Arthritis	38.7	14.9	33.6	49.5	66.7 ¹
Chronic obstructive pulmonary disease	25.8	11.2	20.5	31.2	48.7 ¹
Asthma	15.1	6.9	11.9	17.5	29.6 ¹
Cancer, systemic	5.4	1.9	3.8	6.5	11.4 ¹
Chronic liver disease	3.0	1.6	2.6	3.3	5.3 ¹
Osteoporosis	12.8	3.0	8.8	16.0	29.5 ¹
Thyroid disease	16.2	4.8	11.8	20.1	35.1 ¹
Dementia	4.8	1.3	3.1	5.7	11.8 ¹
Depression	14.6	4.7	10.1	17.7	32.3 ¹
Hearing impairment	17.6	5.6	13.6	22.6	35.0 ¹
Mobility impairment	4.0	0.6	2.2	5.0	10.9 ¹
Visual impairment	70.8	39.0	72.9	85.4	92.9 ¹

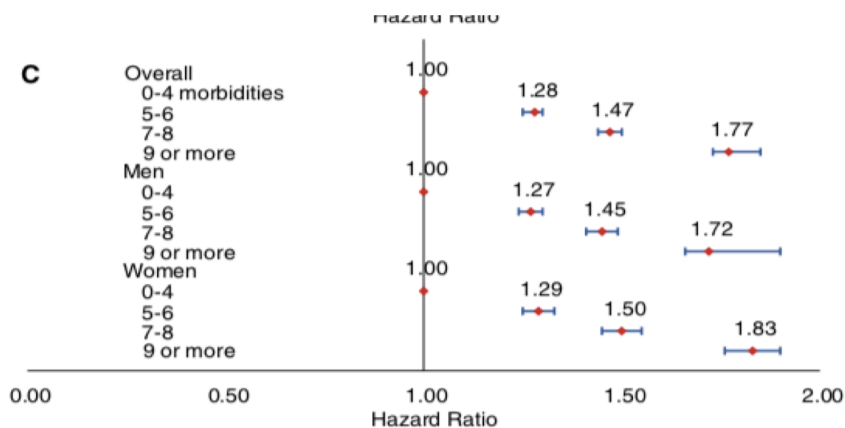




DEATH FROM ANY CAUSE

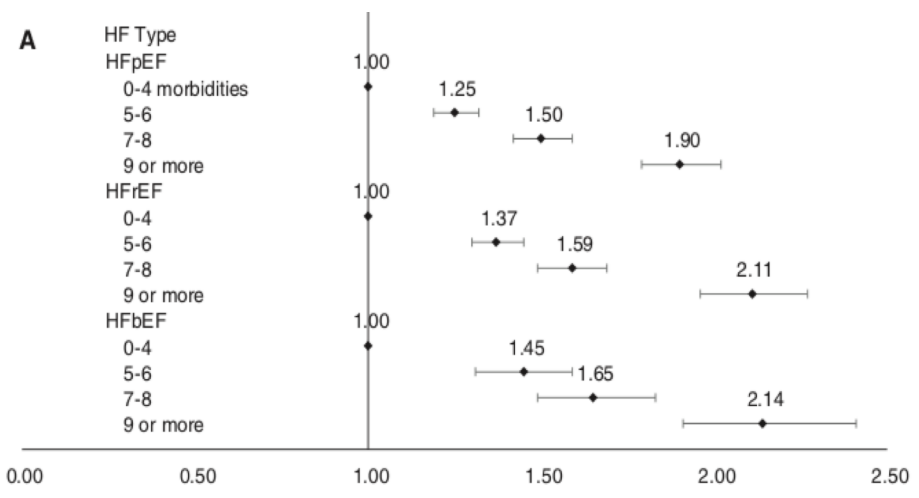


HEART FAILURE- RELATED HOSPITALIZATION

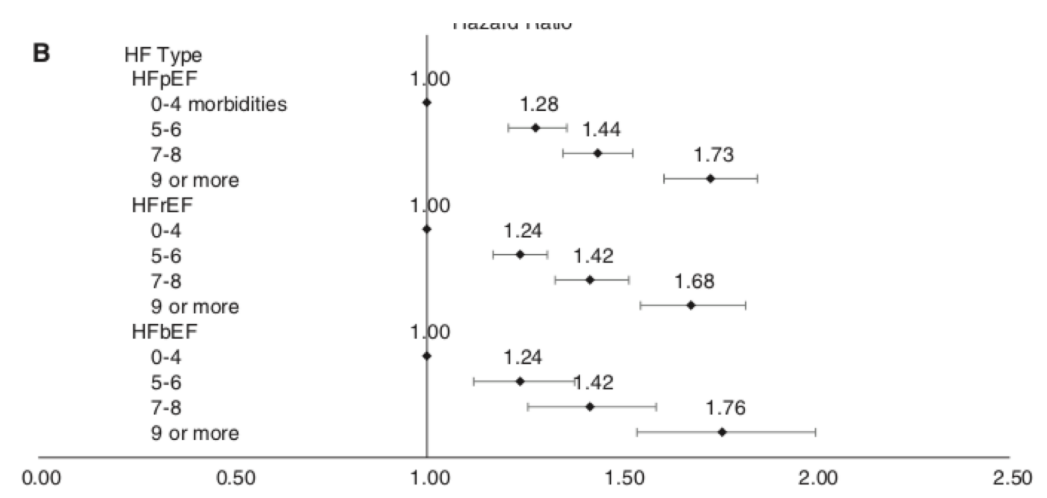


HOSPITALIZATION FOR ANY CAUSE IN ADULTS WITH HEART FAILURE

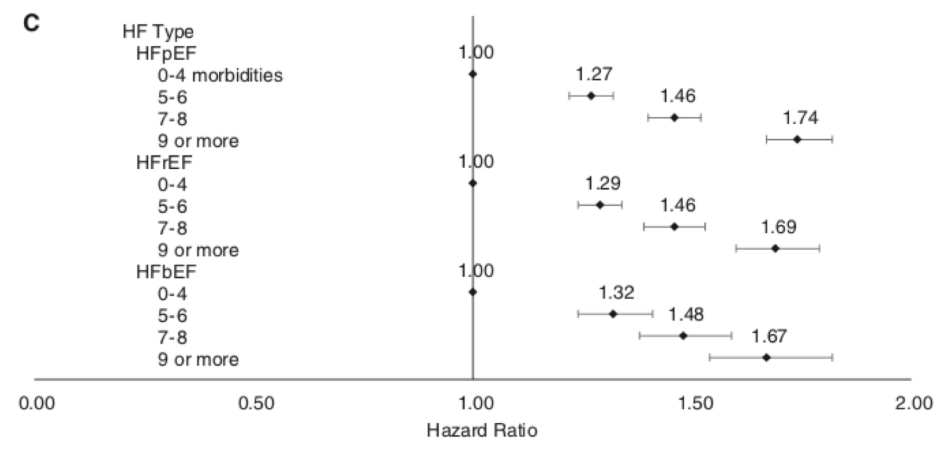




DEATH FROM ANY CAUSE



HEART FAILURE- RELATED HOSPITALIZATION



HOSPITALIZATION FOR ANY CAUSE IN ADULTS WITH HEART FAILURE

Frailty and multiple comorbidities in the elderly patient with heart failure: implications for management

Khalil Murad · Dalane W. Kitzman

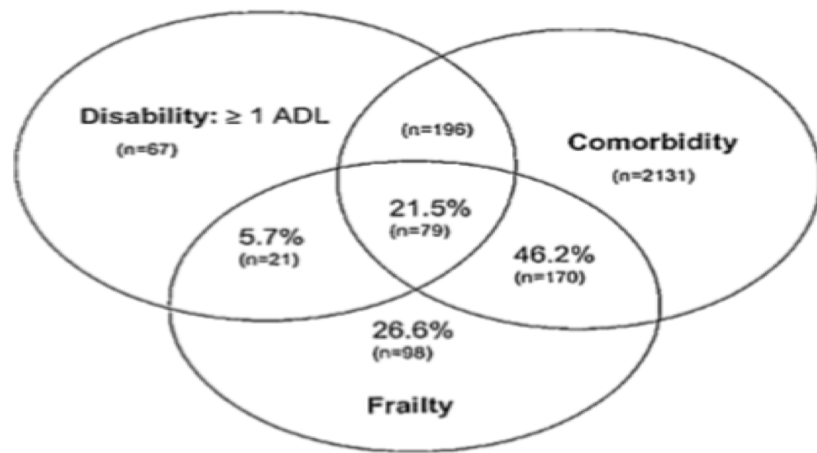
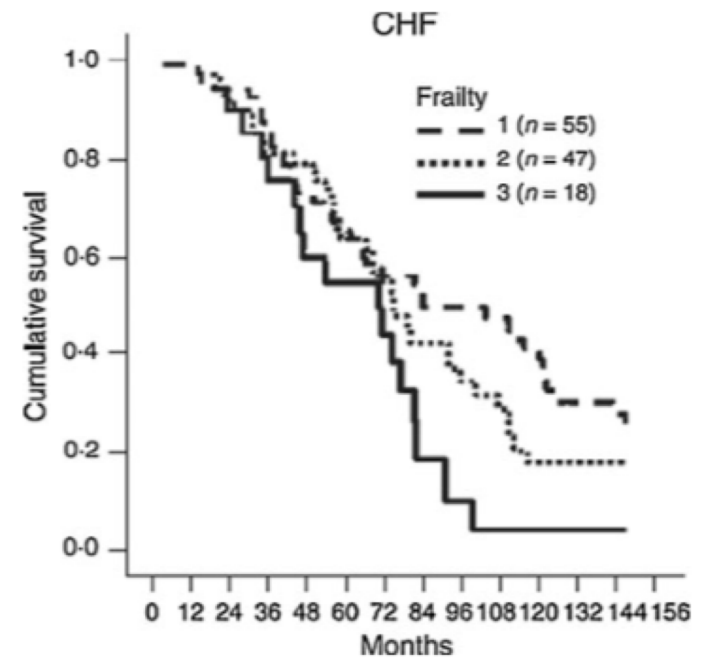


Fig. 2 Venn diagram displaying the extent of overlap of frailty with ADL disability and comorbidity (≥ 2 diseases) in 2,762 subjects who have at least one of these 3 entities (reproduced with permission from Fried et al. [12])



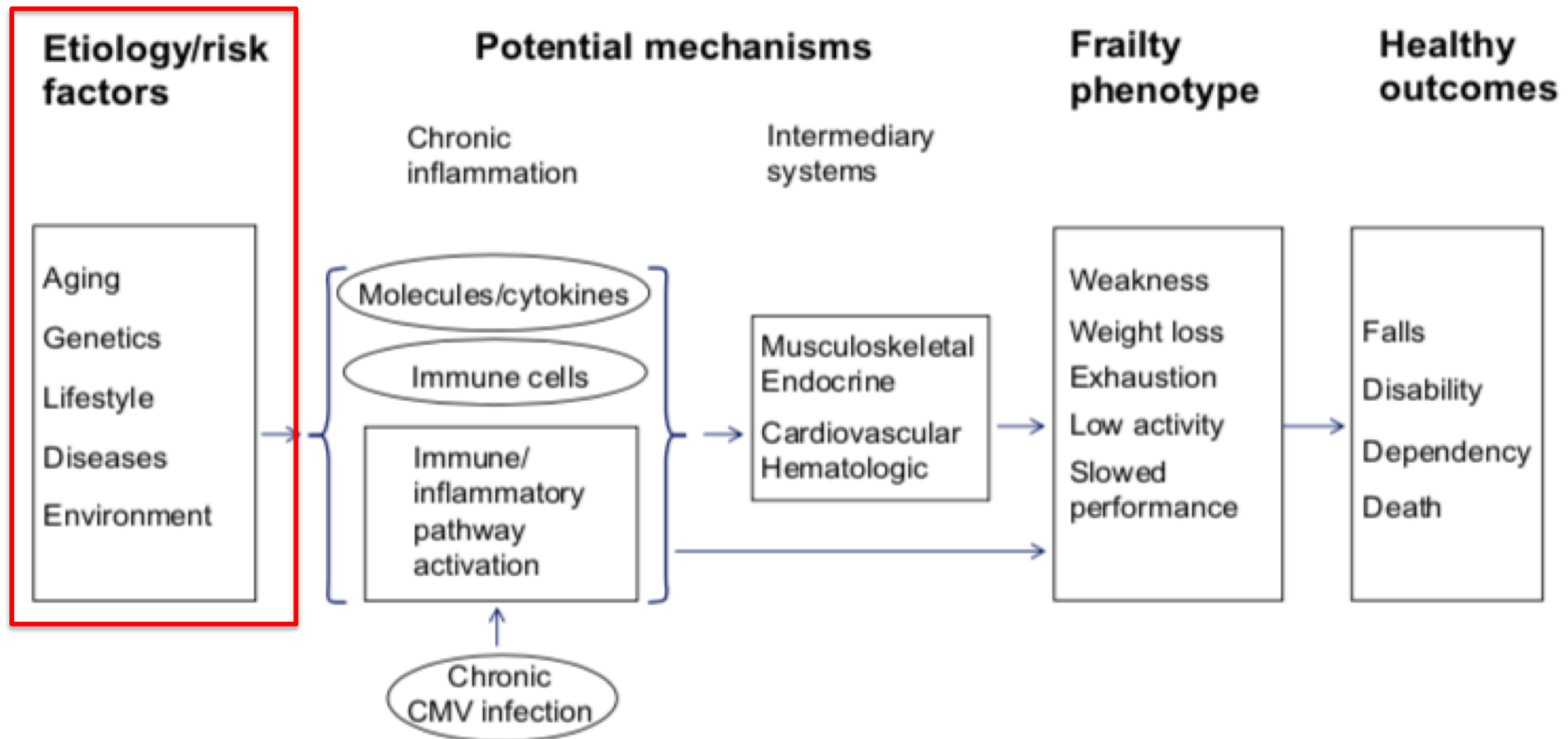
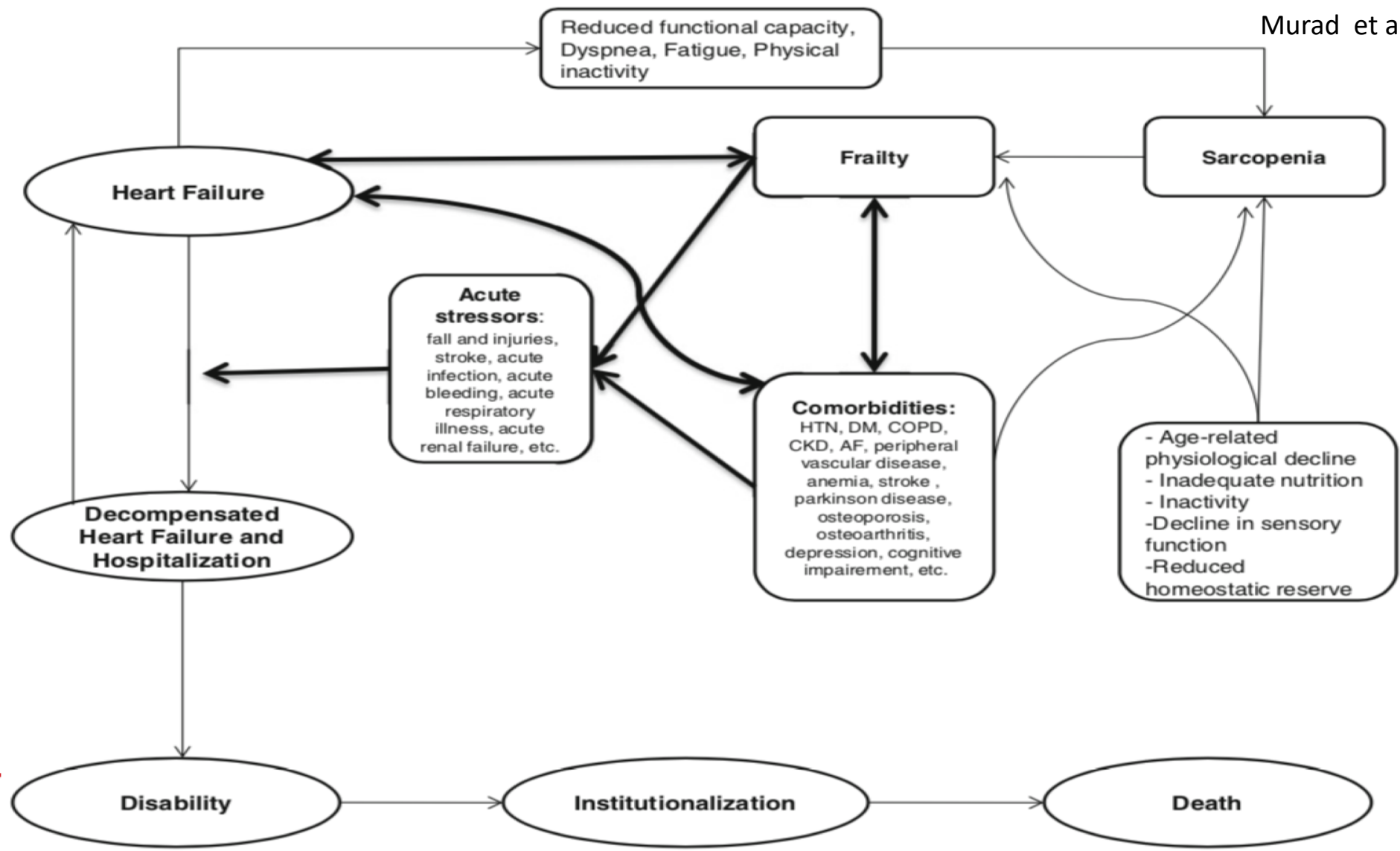


Figure 2 Pathogenesis of the frailty syndrome: current understanding of potential underlying mechanisms and hypothetical modal pathways leading to frailty.
Abbreviation: CMV, Cytomegalovirus.



MONSIEUR TREMBLAY

♂ **78 ans** veuf x 2 ans

- CMPI VG 20 % x 2018/01
 - Optimisation Rx finalisée FEVG 30%
 - Nstemi 1998+2019
 - SP revascularisation incomplète
CTO CD , IVA 75 % → 0%
CX 80 % → 0%
 - IRC Cr 190 DFGE 25
 - HTA + DLPD + DB+ (Neuropathie+)
 - Anémie NN (Hb base 110)
 - HBP+ MPOC
- 9 Comorbidités !**



Contexte psychosocial et habitudes de vie :

- Veuf x 2 ans , vit seul duplex (1^e étage)
- 2 enfants : Bons liens : 1 fils vit 2^e étage duplex
- AVD : semi-autonome
 - Ménage : service privé \$; Nourriture : Souvent fils et filles (+ plats pré-préparés réduit en Na+)
- AVQ : Autonome (barres salle bain +)
- Aide marche : canne +
- 1 chute environnementale il y a 5 mois.
- HDV : Mange 2 repas par jour peu d'appétit Ø suppléments. Diète contrôlée NA + et LL 1.8 L respectée
- Tabac – alcool – drogue –
- Marche à la maison si non plutôt sédentaire



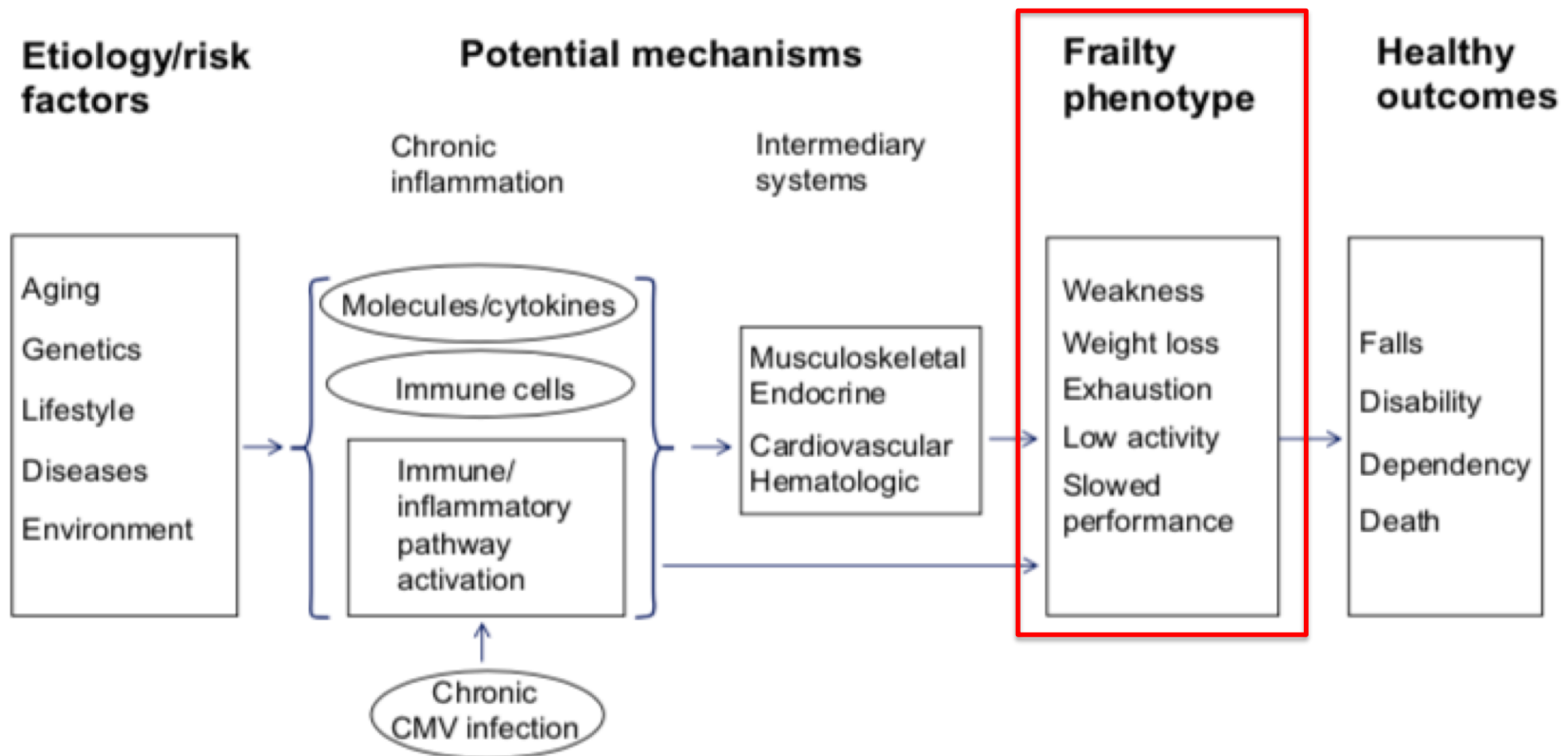


Figure 2 Pathogenesis of the frailty syndrome: current understanding of potential underlying mechanisms and hypothetical modal pathways leading to frailty.
Abbreviation: CMV, Cytomegalovirus.

COMMENT ÉVALUEZ-VOUS LA FRAGILITÉ DE VOS PATIENTS ?



Image:
https://www.iconfinder.com/icons/2251564/ask_doctor_health_medical_question_icon



INSTITUT DE
CARDIOLOGIE
DE MONTRÉAL

APPLIÉE A
Université
de Montréal

Clinical Frailty Scale*



1 Very Fit – People who are robust, active, energetic and motivated. These people commonly exercise regularly. They are among the fittest for their age.



2 Well – People who have **no active disease symptoms** but are less fit than category 1. Often, they exercise or are very **active occasionally**, e.g. seasonally.



3 Managing Well – People whose **medical problems are well controlled**, but are **not regularly active** beyond routine walking.



4 Vulnerable – While **not dependent** on others for daily help, often **symptoms limit activities**. A common complaint is being "slowed up", and/or being tired during the day.



5 Mildly Frail – These people often have **more evident slowing**, and need help in **high order IADLs** (finances, transportation, heavy housework, medications). Typically, mild frailty progressively impairs shopping and walking outside alone, meal preparation and housework.



6 Moderately Frail – People need help with **all outside activities** and with **keeping house**. Inside, they often have problems with stairs and need **help with bathing** and might need minimal assistance (cuing, standby) with dressing.



7 Severely Frail – **Completely dependent for personal care**, from whatever cause (physical or cognitive). Even so, they seem stable and not at high risk of dying (within ~ 6 months).



8 Very Severely Frail – Completely dependent, approaching the end of life. Typically, they could not recover even from a minor illness.



9. Terminally Ill - Approaching the end of life. This category applies to people with a **life expectancy <6 months**, who are **not otherwise evidently frail**.

Scoring frailty in people with dementia

The degree of frailty corresponds to the degree of dementia. Common **symptoms in mild dementia** include forgetting the details of a recent event, though still remembering the event itself, repeating the same question/story and social withdrawal.

In **moderate dementia**, recent memory is very impaired, even though they seemingly can remember their past life events well. They can do personal care with prompting.

In **severe dementia**, they cannot do personal care without help.

* 1. Canadian Study on Health & Aging, Revised 2008.

2. K. Rockwood et al. A global clinical measure of fitness and frailty in elderly people. CMAJ 2005;173:489-495.

© 2007-2009. Version 1.2. All rights reserved. Geriatric Medicine Research, Dalhousie University, Halifax, Canada. Permission granted to copy for research and educational purposes only.

FRAILTY PHÉNOTYPE

Table 1 The frailty phenotype (FP) **Fried's frailty phenotype**

FP criteria	Measurement
Weakness	Grip strength: lowest 20% (by sex, body mass index)
Slowness	Walking time/15 feet: slowest 20% (by sex, height)
Low level of physical activity	Kcal/week: lowest 20% Males: 383 Kcal/week Females: 270 Kcal/week
Exhaustion; poor endurance	"Exhaustion" (self-report)
Weight loss	>10 lb lost unintentionally in prior year

Note: Adapted from Fried LP, Tangen C, Walston J, et al. Frailty in older adults: evidence for a phenotype. *J Gerontol A Biol Sci Med Sci.* 2001;56A:M1-M11, by permission of Oxford University Press.⁵

≥ 3 critères / 5 = Frailty
1-2 critères / 5 = pré-frail



Frailty Assessment in the Cardiovascular Care of Older Adults



Patients with chronic heart failure who were frail had a higher risk of mortality at 1 year (17% vs. 5%), heart failure hospitalizations (21% vs. 13%), and impaired quality of life (49). Chaudhry et al. (52) showed that slow gait speed was the most powerful predictor of hospitalizations, conferring a 30% increase; weak grip strength was also predictive, conferring a 16% increase. In a long-term study by Cacciatore et al. (53), patients with chronic heart failure who were frail had a substantially lower probability of surviving >10 years (6% vs. 31%).

↑ Hospitalisation ICd
↓ Qualité de vie
↑ Mortalité



Frailty Assessment Using Physical Performance Tests *A Step-by-Step Guide*

5-Meter Gait Speed
Hand Grip Test
Balance Test
Chair Rise Test



<https://vimeo.com/118356014>

Affilalo et al.



INSTITUT DE
CARDIOLOGIE
DE MONTRÉAL

APPUIER A
Université
de Montréal

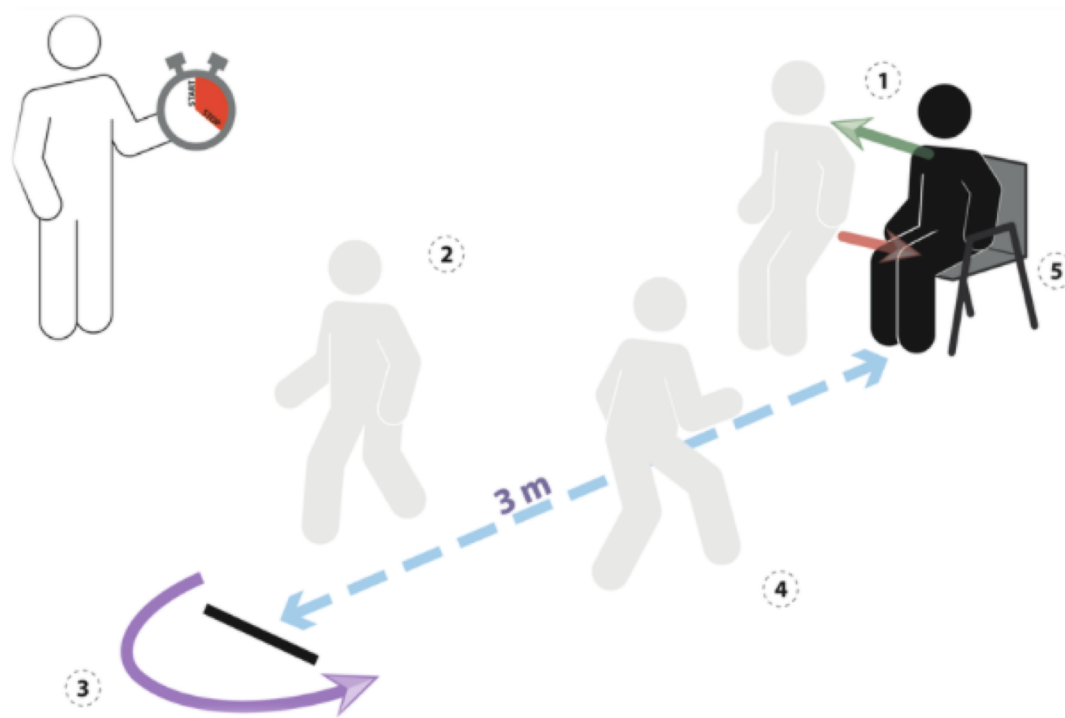
Table 1

Recommended Frailty Assessment Tools

Domain	Tool(s)	Operational Definition
Slowness	5-m gait speed test	Patient is positioned behind start line and asked to walk at a comfortable pace past 5-m finish line; cue to trigger stopwatch is first footfall after start line and first footfall after finish line; repeated 3 times and averaged Slow > 6 sec Very Slow > 7.7 sec Extremely slow > 10 sec.
Weakness	Handgrip strength test	Patient is asked to squeeze a handgrip dynamometer as hard as possible; repeated 3 times (once with each hand and then with strongest hand); maximum value is recorded
	Knee extensor strength test	Patient is seated on the dynamometer machine and asked to extend his/her knee against resistance; maximum isotonic force is recorded H: < 30 Kg F: < 20 Kg
Low physical activity	Physical activity questionnaire	Many questionnaires have been validated; those that provide a measure of activity in kcal/week are recommended (e.g., Minnesota Leisure Time Activity, PASE, Paffenbarger Physical Activity Questionnaire)
	Portable accelerometer	Patient is asked to wear a portable accelerometer for a period of 1 to 7 days; total kcal expenditure is recorded H: < 383 Kcal / semaine F: < 270 Kcal/ semaine

Timed Get up and go : TUG Test !

. Observations lors du test « Get up and go ».		
<i>Etape</i>	<i>Observer</i>	<i>Cotation</i>
<u>Se lever du siège</u>	Patient se rejette en arrière ?	-4
	Se penche en avant de manière anormale	0
	Obligé de s'aider des accoudoirs ?	-2
	Se lève d'un seul élan	0
	Besoin de deux ou trois essais	-1
<u>Marcher devant soi 3m</u>	Marche rectiligne, sans détours	0
	Méandres prononcés	-1
<u>Faire demi-tour rapidement</u>	Capable de pivoter sur place ?	0
	Obligé d'exécuter plusieurs pas successifs ?	-3
<u>Retourner s'asseoir</u>	Descend avec contrôle de la flexion des genoux ?	0
	Se laisse tomber dès que la flexion atteint 30° ?	-4



< 10 seconde = Normal

≥ 14 seconde = risque chute +

≤ 20 seconde = aide marche mais sans aide x 1

≤ 30 seconde = aide marche + aide x 1

Table 1

Recommended Frailty Assessment Tools

Domain	Tool(s)	Operational Definition
Exhaustion	CES-D questionnaire	Patient is asked 2 questions: How often in the past week did you feel like everything you did was an effort?/like you could not get going? (often [i.e., ≥ 3 days] or not often [i.e., 0–2 days])
	Anergia questionnaire	Patient is asked 7 questions pertaining to lack of energy over the past month Positive if often is the answer to either question
Shrinking	Weight loss	Self-reported or measured unintentional weight change not due to dieting or exercise >10 lbs in past year
	Appendicular muscle mass	Measured muscle mass in arms and legs using a dual-energy x-ray absorptiometry scan Men: 7.23 kg/height in m² Women: 5.67 kg/height in m²
	Serum albumin	Measured serum albumin < 3.3 g/dl = 33g/l

PHQ-9

Dépistage dépression

PHQ2

Si Q9 + : Évaluation risque Suicidaire !

Au cours des deux dernières semaines, à quelle fréquence avez-vous été dérangé par les problèmes suivants?	Jamais	Plusieurs jours	Plus de la moitié du temps	Presque tous les jours
1. Peu d'intérêt ou de plaisir à faire les choses*	0	1	2	3
2. Vous sentir triste, déprimé ou désespéré*	0	1	2	3
3. Difficultés à vous endormir, à rester endormi ou trop dormir	0	1	2	3
4. Vous sentir fatigué ou avoir peu d'énergie	0	1	2	3
5. Peu d'appétit ou trop d'appétit	0	1	2	3
6. Mauvaise perception de vous-même, vous pensez que vous êtes un perdant ou que vous n'avez pas satisfait vos propres attentes ou celles de votre famille	0	1	2	3
7. Difficultés à vous concentrer sur des choses telles que lire le journal ou regarder la télévision	0	1	2	3
8. Vous bougez ou vous parlez si lentement que les autres personnes ont pu le remarquer. Ou, au contraire, vous êtes si agité que vous bougez beaucoup plus que d'habitude.	0	1	2	3
9. Vous avez pensé que vous seriez mieux mort ou pensé à vous blesser d'une façon ou d'une autre ¹ .	0	1	2	3



Score total : somme des scores obtenus à chaque question : _____

Interprétation des résultats et seuils diagnostiques

- ▶ Le score maximal est **27**.
- ▶ Les items 1 à 9 sont cotés sur une échelle de 0 à 3.
- ▶ L'item 10 (niveau de fonctionnement) est coté sur une échelle entre 0 et 4, allant de « pas du tout difficile » à « extrêmement difficile ».

Seuils diagnostiques concernant la sévérité de la dépression¹

- Absence de dépression : 0-4 points
- Dépression légère : 5-9 points
- Dépression modérée : 10-14 points
- Dépression modérément sévère : 15-19 points
- Dépression sévère : 20-27 points

Qualités métrologiques du QSP-9 pour le repérage des symptômes dépressifs en première ligne

Sensibilité (%)	Spécificité (%)
77	85

Les résultats représentent une valeur moyenne pour un seuil diagnostique de 10 sur 27¹.

Versus : Geriatric Depression Scale (short form) ?




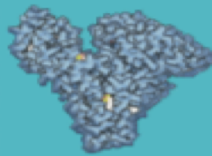
Inesss 2015



INSTITUT DE
CARDIOLOGIE
DE MONTRÉAL

APPLICA
Université
de Montréal

CENTRAL ILLUSTRATION Essential Frailty Toolset in Older Adults Undergoing Aortic Valve Replacement

	Five chair rises <15 seconds	0 Points
	Five chair rises ≥15 seconds	1 Point
	Unable to complete	2 Points
	No cognitive impairment	0 Points
	Cognitive impairment	1 Point
	Hemoglobin ≥13.0 g/dL ♂ ≥12.0 g/dL ♀	0 Points
	Hemoglobin <13.0 g/dL ♂ <12.0 g/dL ♀	1 Point
	Serum albumin ≥3.5 g/dL	0 Points
	Serum albumin <3.5 g/dL	1 Point

EFT Score	1-Year Mortality	
	TAVR	SAVR
0-1	6%	3%
2	15%	7%
3	28%	16%
4	30%	38%
5	65%	50%

EFT Points: _____

Frailty in Older Adults Undergoing Aortic Valve Replacement

The FRAILTY-AVR Study

Mini-Mental State Examination (MMSE) MOCA

MONTEAL COGNITIVE ASSESSMENT (MOCA)
VERSION 7.1, Original Version

Education: M Sex: M Date of Birth: _____ DATE: _____

VISUOSPATIAL / EXECUTIVE

Copy cube Draw CLOCK (Ten past eleven)

NAMING

MEMORY Read list of words, subject must repeat them. Do 2 trials, even if 1st trial successful. Do a recall after 5 minutes.

	FACE	VELVET	CHURCH	DAISY	RED	No points
1st trial	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
2nd trial	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	

ATTENTION Read list of digits (1 digit/sec). Subject has to repeat them in the forward order [✓] 2 1 8 5 4
Subject has to repeat them in the backward order [✓] 7 4 2

Read list of letters. The subject must tap with his hand at each letter A. No points if > 2 errors
[] FBACMNAAJKLBAFAKDEAAAJAMOFAB

Serial 7 subtraction starting at 100 [✓] 93 [✓] 86 [] 79 [] 72 [] 65

4 or 3 correct subtractions: 3 pts, 2 or 3 correct: 2 pts, 1 correct: 1 pt, 0 correct: 0 pt

LANGUAGE Repeat: I only know that John is the one to help today. [✓] 1
Repeat: The cat always hid under the couch when dogs were in the room. [X] 0
Fluency/Name: Alliteration: Number of words in one sentence that begin with the letter F [X] 4 (N ≥ 11 words) 0

ABSTRACTION Similarity between e.g. banana - orange - fruit [✓] train - bicycle [X] watch - ruler *time* 0

DELAYED RECALL Has to recall words WITH NO CUE: FACE [X] VELVET [X] CHURCH [X] DAISY [X] RED [X] Points for recalled only 0

Optional Category cue: Multiple choice cue [✓] X [X] X [X] X 0

ORIENTATION [✓] Date [✓] Month [✓] Year [✓] Day [✓] Place [✓] City 6

Frailty Assessment in the Cardiovascular Care of Older Adults



Échelles d'évaluation
VS
Jugement clinique

Combinaison des deux !

A guiding principle is that frailty, disability, and comorbidity are inter-related but distinct entities (75). A second principle is that there is no definitive gold standard test for frailty, but rather an assortment of tools that reflect 1 or more domains of frailty. Multidomain tools do not necessarily provide incremental value above single-domain tools, and ease of implementation may be an important factor for adoption. A third principle is that frailty is a continuous spectrum, and specific cutoffs used to dichotomize frailty status in 1 group of patients may not be applicable in another group.



MONSIEUR TREMBLAY

- 5 Mètres à la marche : 10 secondes
- Timed Get up and Go (TUG) : 16 secondes
- Fait très peu d'activité physique
 - 5 x levé chaise > 15 secondes
- PHQ-2 Négatif MMSE -
- Perte 12 livres x 1 an
- Albumine a 30g/l
- IMC 19.5



INSTITUT DE
CARDIOLOGIE
DE MONTRÉAL

APPILÉE À
Université
de Montréal

EST-CE QUE MONSIEUR TREMBLAY PRÉSENTE DE LA FRAGILITÉ GÉRIATRIQUE ?



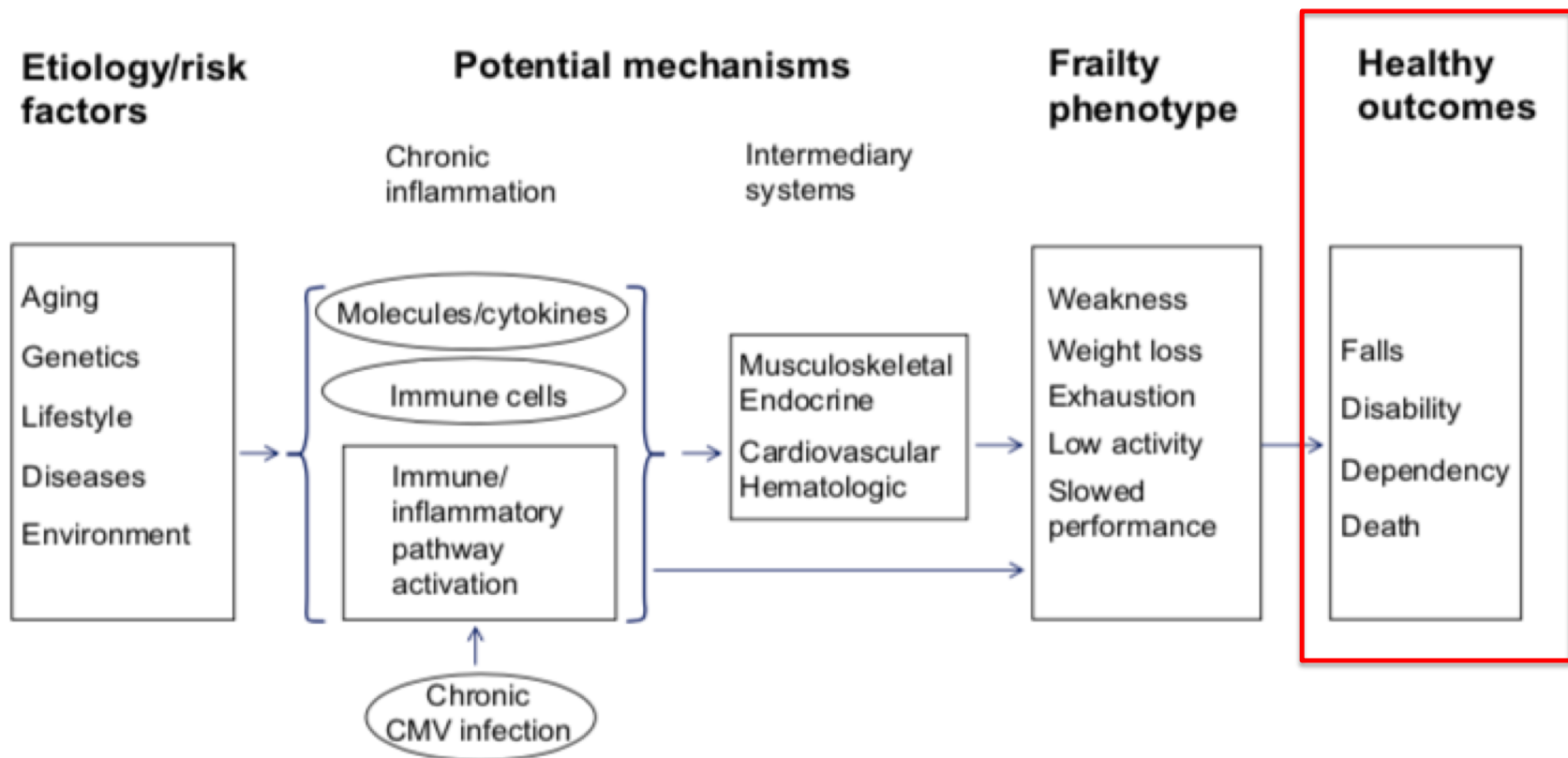
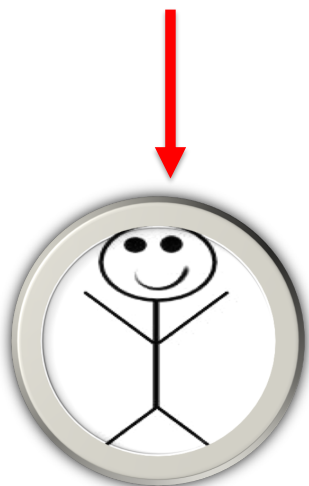


Figure 2 Pathogenesis of the frailty syndrome: current understanding of potential underlying mechanisms and hypothetical modal pathways leading to frailty.
Abbreviation: CMV, Cytomegalovirus.

GIANTS OF GERIATRICS

Bernard Isaacs 1976



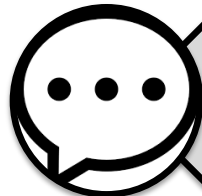
**Nouveauté :
SARCOPÉNIE**



Immobility



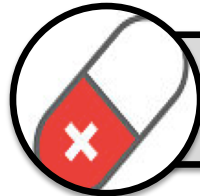
Instability



Intellectual impairment



Incontinence



Iatrogenesis



INSTITUT DE
CARDIOLOGIE
DE MONTRÉAL

APPLIÉE À
Université
de Montréal



IMMOBILITY

Évaluer ↓ Activité physique 2nd Dyspnée ?

- ↑ risque de déconditionnement
- ↑ risque de plaies
- ↑ Risque TVP ? (patient ⊗ ACO- varices)
- ↑ risque de constipation
- ↑ risque de chutes (**syndrome post-chute?**)

SYNDROME POST-CHUTE (FEAR OF FALLING)

Outils de dépistage du facteur de risque

Au-delà de la variété d'outils existants pour mesurer la peur de chuter, le plus important est d'aborder le sujet avec les personnes âgées. Les deux questions suivantes peuvent être posées :

- Avez-vous peur de tomber?
- Avez-vous déjà limité vos activités par peur de tomber?





INTELLECTUAL IMPAIRMENT

Évaluer l'Hyponatrémie et la volémie !

- ↑ risque de Délirium (surtout en hyper volémie)
 - Dépistage : CAM – ICDSC etc.
- ↑ prévalence Démence en HF (surtout démence vasculaire)
- ↑ risque d'erreurs RX (surtout si autogestion)



INCONTINENCE

- ↑ risque incontinence 2nd
 - Diurétiques (Ex: Furosemide (Lasix) – acide éthacrynique (Edecrin) – métolazone(zaroxolyn))
 - iSGLT2 (Ex: Empagliflozine(Jardiance) / Canagliflozine(Invokana) / Dapagliflozine (Forxiga))
- ↑ risque chute surtout nocturne
 - **Évaluer la nycturie (surtout en IRC)**
- ↑ risque de plaies





IATROGENESIS

- HTO 2nd RX HF (BB – ARNI/ARA/IECA- MRA)
 - Autres RX : BCC - alpha-bloquants (prostate) – Anti-parkinsonien (EX: lévodopa - carbidopa (Sinemet))
- Myalgie → statine – Hypot4 (prise d'amiodarone ?)
- IRA – Hyperkaliémie 2nd RX (diurétique- mra - ARNI/ARA/IECA- MRA)
- Hypoglycémie 2nd (Faible apport ?- Sx masqués Béta-Bloquant ?)
- HypoMg 2nd IPP – Diurétiques – laxatifs
 - Sx GI – Neuro et Msk





INSTABILITY

2nd Hypovolémie iatrogénique ?

- ↑ Risque chute
- HTO ↑ Prévalence en HF
- Cachexie cardiaque et sarcopénie ↑ HF
- Neuropathie diabétique ?

Heart failure and orthostatic hypotension

Oleg Gorelik¹ · Leonid Feldman² · Natan Cohen¹

Only a minority of HF patients demonstrates a normal orthostatic response to peripheral venous pooling. The most frequent abnormality is observed in patients with more severe congestive HF. ~~They, in contrast to healthy~~

Aging is an established risk factor for OH [1–7]. Age-related physiologic changes, such as diminished sensitivity of baroreceptors in the carotid arteries and aorta, attenuated heart rate response, decreased α_1 -adrenergic vasoconstriction and impaired cardiac diastolic filling, are known to contribute to the increased prevalence of OH with age [1–

↑ Risque chutes récurrentes

↑ Risque de syncope

↓ Qualité de vie



FRAILTY AND SARCOPENIA: THE NEW GERIATRIC GIANTS

JOHN E. MORLEY*

Divisions of Geriatric Medicine and Endocrinology, Saint Louis University School of Medicine, St. Louis, Mo., USA

Tabla 3. SARC-F screen for sarcopenia

Component	Question	Scoring
Strength	How much difficulty do you have in lifting and carrying 10 pounds?	None = 0 Some = 1 A lot or unable = 2
Assistance in walking	How much difficulty do you have walking across a room?	None = 0 Some = 1 A lot, use aids, or unable = 2
Rise from a chair	How much difficulty do you have transferring from a chair or bed?	None = 0 Some = 1 A lot or unable without help = 2
Climb stairs	How much difficulty do you have climbing a flight of ten stairs?	None = 0 Some = 1 A lot or unable = 2
Falls	How many times have you fallen in the last year?	None = 0 1-3 falls = 1 4 or more falls = 2

Adapted with permission from Malmstrom, et al.²¹.

≥ 4 prédit sarcopénie ainsi que des mauvais "outcomes"



INSTITUT DE
CARDIOLOGIE
DE MONTRÉAL

APPLIÉE À
Université
de Montréal

Monsieur Tremblay



Perte d'équilibre



Chute



Peu mobile



HTO , CRAMPE MI
FATIGUE



SARC-F >4



Continent



- ⊗ Délirium
- ⊗ Tr.Neurocognitif
- ⊗ Dépression

PLAN TRAITEMENT FRAGILITÉ GÉRIATRIQUE

Name _____

Address _____

Rx

QUEL EST VOTRE PLAN ?

MD _____

Signature _____

Dr. [illegible]



INSTITUT DE
CARDIOLOGIE
DE MONTRÉAL

APPLIÉE A
Université
de Montréal

PROPOSEZ-VOUS L'IMPLANTATION D'UN ICD EN PRÉVENTION PRIMAIRE ?



MONSIEUR TREMBLAY

Objectif de soins / projet de vie:

- Vivre le temps qu'il est possible avec le moins de symptôme et le plus d'autonomie possible.
- **1^e source préoccupation** : Perte d'autonomie

Priorité Qualité vie >>>> Quantité

⊘RCR ⊘IET ⊘dialyse



INSTITUT DE
CARDIOLOGIE
DE MONTRÉAL

APPILÉE A
Université
de Montréal

QUEL EST LE PROGNOSTIC À 1 AN DE MONSIEUR TREMBLAY ?

> 40 %

**PROBABILITÉ
DE MORTALITÉ**

< 40 %

**PROBABILITÉ DE
MORTALITÉ**



INSTITUT DE
CARDIOLOGIE
DE MONTRÉAL

APPILÉE A
Université
de Montréal

MAGGIC SCORE

1 an : 45.8 %

3 ans : 78.7 %



INSTITUT DE
CARDIOLOGIE
DE MONTRÉAL

APPLIÉE À
Université
de Montréal

Society Guidelines

Canadian Cardiovascular Society/Canadian Heart Rhythm Society 2016 Implantable Cardioverter-Defibrillator Guidelines

• **MAGGIC SCORE :**

- 1 an : 45.8 %
- 3 ans : 78.7 %

- 78 ans avec Frailty +
- Objectif de soins pas de RCR

Discussion avec patient :

- ne veut pas de ICD

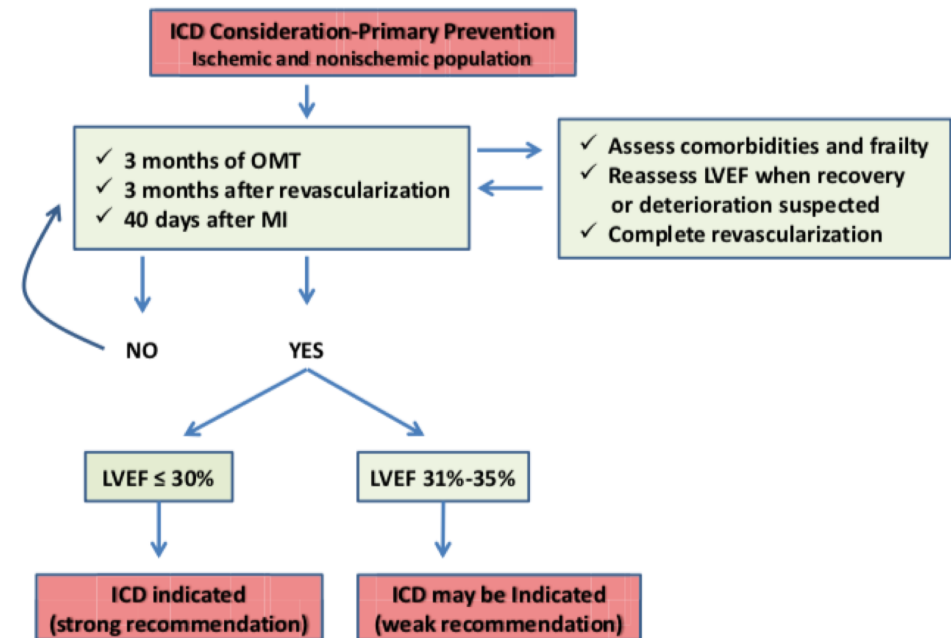
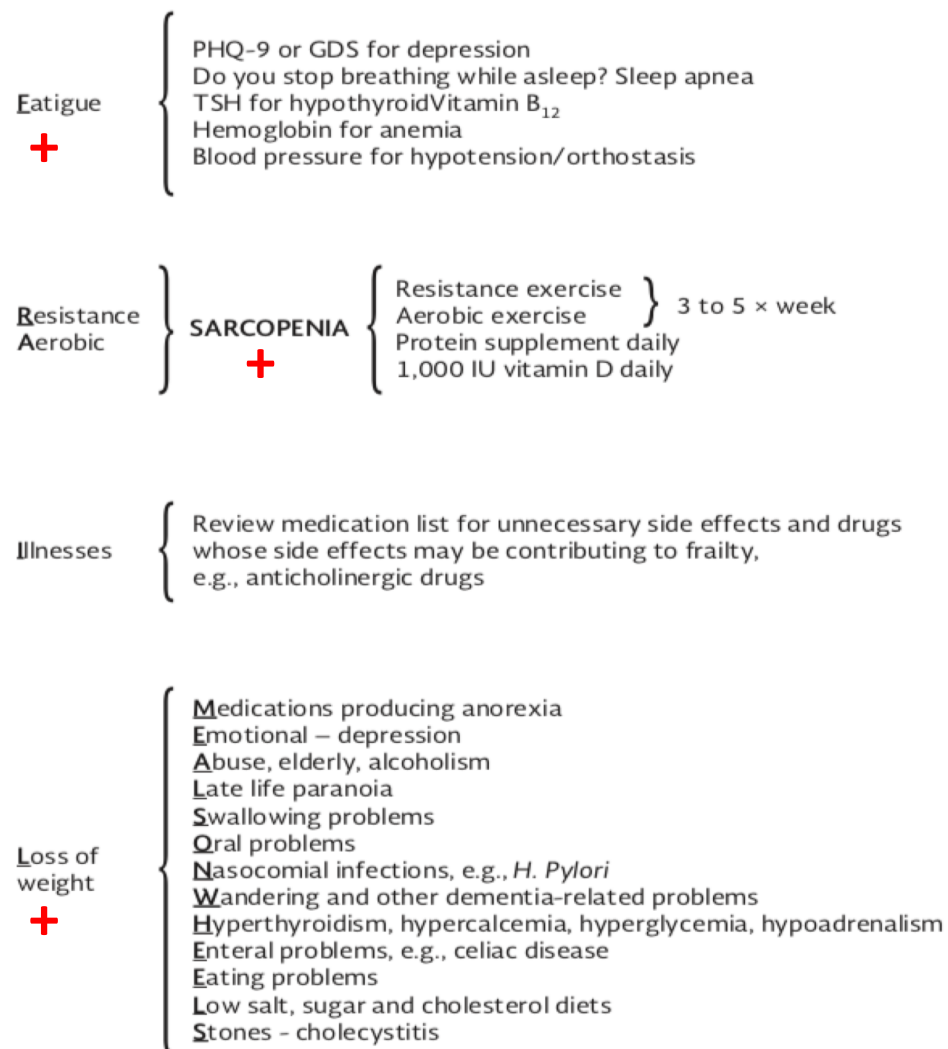


Figure 1. Algorithm for management of frailty.



Monsieur Tremblay



PHQ – 9 négatif : 3
Stop bang (SAHS) –
TSH : N HB 105 stable
HTO + (110 → 85) (Δ RX + bas supports + enseignement)

Référence : Centre prévention réadaptation PRN
Recommander 3 x 5 semaines marches selon tolérance

Réévaluation RX (à venir !)
Dé prescription !



Caloric
Supplementation

Plan nutritionnel avec Nutritionniste
Suppléments calorique +



INSTITUT DE
CARDIOLOGIE
DE MONTRÉAL

APPILÉE À
Université
de Montréal

REVIEWS OF THERAPEUTICS

Deprescribing: An Application to Medication Management in Older Adults

Table 1. Deprescribing Process⁶

1. Obtain a complete medication list and determine the indication for each medication
2. Evaluate each medication's potential for drug-induced harm
3. Determine if a medication should be discontinued by evaluating the appropriateness of the indication, whether it is being used to treat adverse effects of other medications, efficacy, benefit-to-harm ratio, treatment burden, and if the patient's life expectancy exceeds the time to therapeutic benefit (for preventive medications)
4. Determine a plan for discontinuing medications one at time, starting with medications with the highest burden and lowest benefit
5. Discontinue medications and monitor for withdrawal or return of symptoms

Patient partenaire !

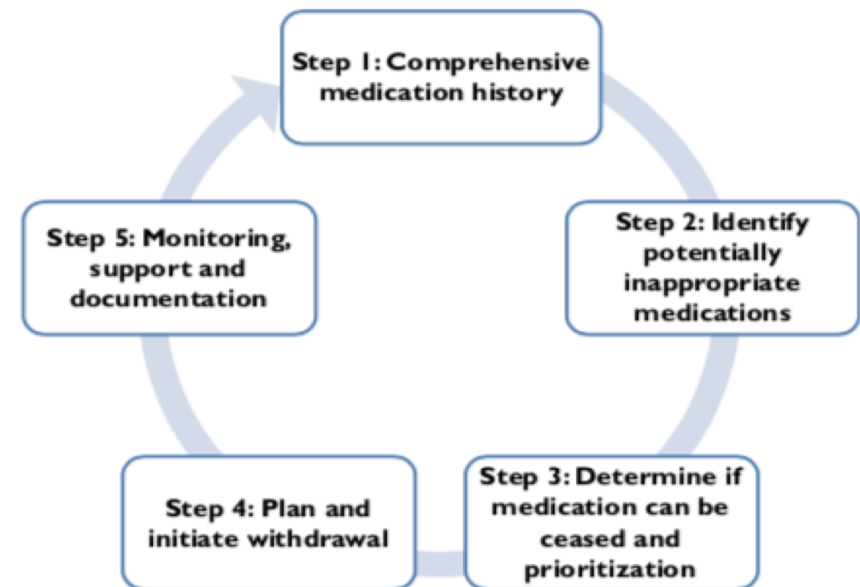


Figure 1

The five-step patient-centred deprescribing process

LISTE MÉDICAMENTS



- Aspirin 80 mg po die
 - Plavix 75 mg po die
 - HB 105 stable
 - Bisoprolol 10 mg po die
 - FC 55 / minutes sinusale QRS 110
 - Fatigue ++
 - Entresto étape 3
 - TA 105 /40 HTO +
 - Aldactone 50 mg po die
 - K+ 4.9
 - Lasix 80 mg po BID
- Nyha 3 stable
- Cr 190 DFGE 25
Stable
Euvolémique !
- Pantoloc 40 mg po die
 - Mg 0.79 Crampe MI +
 - ⊘RGO
 - Lipitor 80 mg po die
 - Crampe MI + Myalgie ?
 - LDL 0.6
 - Insuline QID + HS
 - Glycémies Stables
 - ⊘ Hypoglycémie
 - Calcium – Vit-d 500/ 400 BID
 - Flomax 0.4 mg po die HS HTO +

Calculation Tool

Please answer the questions below to calculate the ten year probability of fracture with BMD.

Country: **Canada** Name/ID: [About the risk factors](#)

Questionnaire:

1. Age (between 40 and 90 years) or Date of Birth

Age: Date of Birth: Y: M: D:

2. Sex Male Female

3. Weight (kg)

4. Height (cm)

5. Previous Fracture No Yes

6. Parent Fractured Hip No Yes

7. Current Smoking No Yes

8. Glucocorticoids No Yes

9. Rheumatoid arthritis No Yes

10. Secondary osteoporosis No Yes

11. Alcohol 3 or more units/day No Yes

12. Femoral neck BMD (g/cm²)

Select BMD

BMI: 19.5
The ten year probability of fracture (%)

without BMD	
Major osteoporotic	8.4
Hip Fracture	4.8

Calcium et vitamine D

Il existe une controverse concernant à la fois l'efficacité de la supplémentation calcique sur la diminution des fractures^{32,33} et les effets indésirables potentiels d'une supplémentation à forte dose³⁴. Au sein d'Ostéoporose Canada, un autre groupe (auquel ont appartenu certains auteurs de cet article) a récemment élaboré des lignes directrices concernant la vitamine D³⁵. Nous soulignons ici les principaux changements survenus dans les recommandations sur la vitamine D par rapport aux lignes directrices de 2002 d'Ostéoporose Canada.

1. La dose quotidienne totale de calcium élément absorbée (avec l'alimentation et les suppléments) pour des personnes de plus de 50 ans doit être de 1200 mg [niveau B].
2. Chez les adultes en bonne santé présentant un faible risque de déficit en vitamine D, une supplémentation habituelle quotidienne de 400 à 1000 UI (10–25 µg) de vitamine D₃ est recommandée [niveau D].
3. Chez les adultes de plus de 50 ans présentant un risque modéré de déficit en vitamine D, une supplémentation quotidienne de 800 à 1000 UI (20–25 µg) de vitamine D₃ est recommandée. Une supplémentation quotidienne de plus de 1000 UI (25 µg) peut être nécessaire pour parvenir au niveau optimal de vitamine D. Des doses quotidiennes allant jusqu'à 2000 UI (50 µg) sont sécuritaires et ne nécessitent pas de surveillance [niveau C].

CLINICAL INVESTIGATIONS

American Geriatrics Society 2019 Updated AGS Beers Criteria[®] for Potentially Inappropriate Medication Use in Older Adults

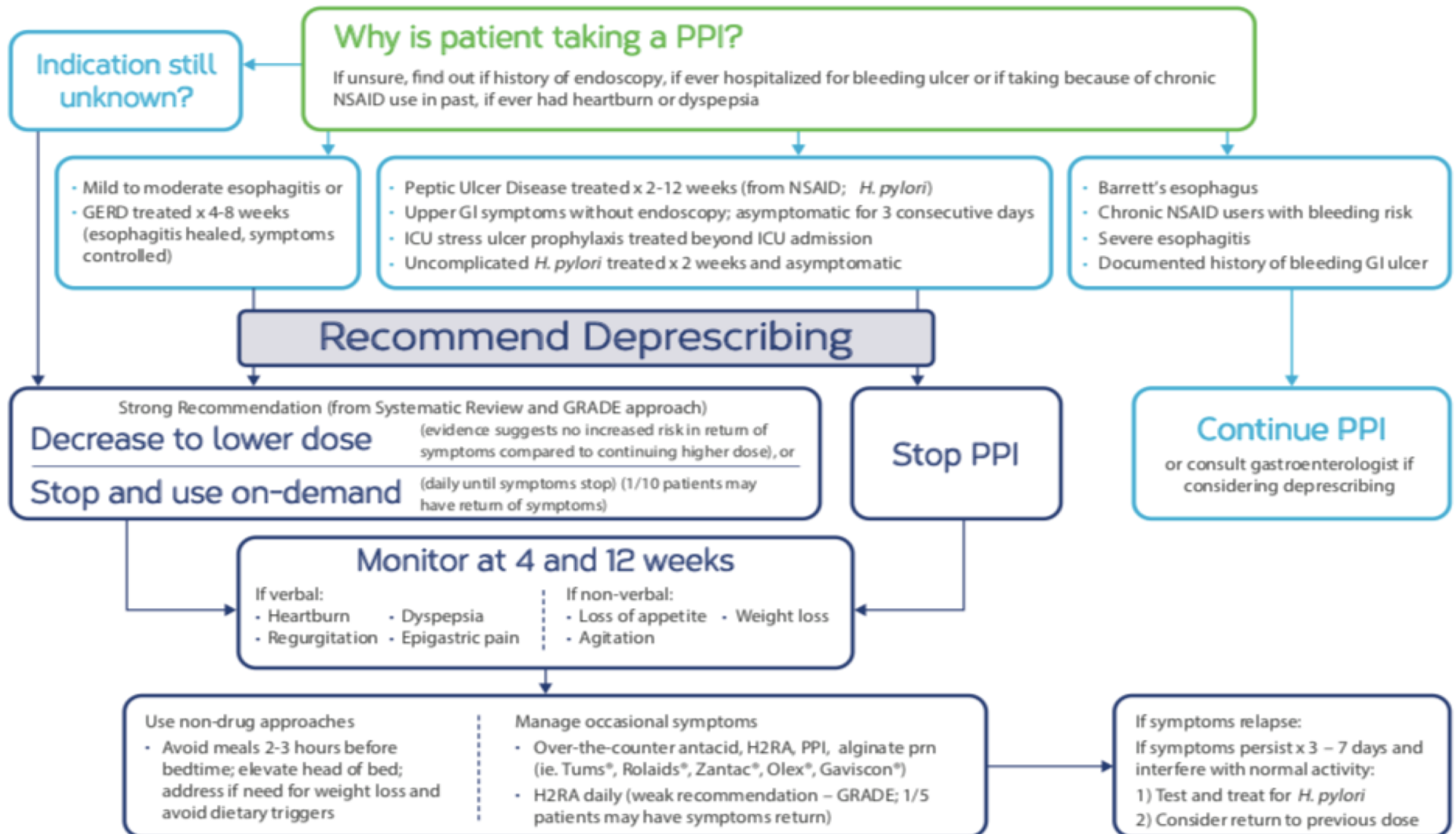
*By the 2019 American Geriatrics Society Beers Criteria[®] Update Expert Panel**

Organ System, Therapeutic Category, Drug(s)	Rationale	Recommendation	Quality of Evidence	Strength of Recommendation
Proton-pump inhibitors	Risk of <i>Clostridium difficile</i> infection and bone loss and fractures	Avoid scheduled use for >8 weeks unless for high-risk patients (eg, oral corticosteroids or chronic NSAID use), erosive esophagitis, Barrett esophagitis, pathological hypersecretory condition, or demonstrated need for maintenance treatment (eg, because of failure of drug discontinuation trial or H2-receptor antagonists)	High	Strong



INSTITUT DE
CARDIOLOGIE
DE MONTRÉAL

APPLIQUE À
Université
de Montréal





Canadian Journal of Cardiology 33 (2017) 1725–1728

Training/Practice
Contemporary Issues in Cardiology Practice
Orthostatic Hypotension: A Practical Approach to
Investigation and Management

Amy C. Arnold, PhD, MSCI,^{a,b} and Satish R. Raj, MD, MSCI^{b,c}



INSTITUT DE
CARDIOLOGIE
DE MONTRÉAL

APPLIÉE À
Université
de Montréal

Table 1. Treatment approaches in orthostatic hypotension

Nonpharmacological interventions

Reduce venous pooling

- Physical countermanoeuvres (eg, standing with legs crossed, squatting, active tensing of leg muscles, breathing-related manoeuvres to increase inspiratory resistance, and avoiding getting up too quickly or standing motionless)
- Compression stockings or abdominal binders (30-40 mm Hg)

Increase central volume

- Increase sodium intake (6-9 g/d)
- Increase water intake (2-3 L/d)
- Raise head of bed during night to prevent pressure natriuresis (6-9 inches)

Other lifestyle modifications

- Eat small frequent meals
- Physical activity such as water exercise, recumbent bicycling, or rowing
- Avoid alcohol consumption
- Avoid situations that increase core body temperature such as prolonged hot showers

Pharmacological interventions

Increase intravascular volume

- Fludrocortisone (0.1-0.2 mg/d, PO)

Increase vascular resistance

- Midodrine (2.5-10 mg, PO)
- Droxidopa (100-600 mg, PO)
- Atomoxetine (18 mg, PO)
- Yohimbine (5.4 mg, PO)
- Pyridostigmine (60 mg, PO)
- Octreotide (12.5-25 µg, subcutaneous)
- Pseudoephedrine (30 mg, PO)

Combination therapy

- Fludrocortisone (0.1-0.2 mg/d, PO) and midodrine (5-10 mg, PO)
- Ergotamine (1 mg, PO) and caffeine (100 mg, PO)
- Midodrine (5-10 mg, PO) or pseudoephedrine (30 mg, PO) and water (500 mL)

Applicable en insuffisance cardiaque

?

Chronic OH usually requires pharmacologic interventions. The acceptable pharmacotherapy with fludrocortisone and midodrine is problematic in HF, due to the risk of adverse effects [2, 33]. HF is a relative contraindication to the use of fludrocortisone due to common side effects, such as: hypokalemia, aggravation of hypertension and congestive HF [5]. The use of midodrine is also limited in elderly HF patients due to potential side effects, including urinary retention and worsening hypertension. Nevertheless, midodrine is recommended as the preferable agent in HF because of its short action [5]. Treatment should begin with a single 2.5-mg dose and can subsequently be increased up to 10 mg. To avoid supine hypertension, the

LISTE MÉDICAMENTS



- Aspirin 80 mg po die
- ✘ Plavix 75 mg po die
- ↓ Bisoprolol 10 mg po die

- HB 105 stable

- FC 55 / minutes sinusale QRS 110

- Fatigue ++

- Entresto étape 3

- TA 105 /40 HTO +++

- Aldactone 50 mg po die

- K+ 4.9

- Lasix 80 mg po BID

Chronothérapie
+/- diminuer
doses

- ✘ Pantoloc 40 mg po die

- Mg 0.79 Crampe MI +

- Pas de RGO

- ↓ Lipitor 80 mg po die

- Crampe MI + Myalgie ?

- LDL 0.6

- Insuline QID + HS

- Glycémies Stables

- pas Hypoglycémie

- Calcium – Vit-d 500/ 400 BID

- Flomax 0.4 mg po die HS

Discussion avec
patient



COLLABORER AVEC :

- Pharmacien
 - infirmière praticienne
 - Nutritionniste
 - Travailleur social
 - Inf. Soins palliatifs
 - Physiothérapie
 - Etc
-
- Créer lien avec 1^e ligne !!!



- Arnold, A. C., & Raj, S. R. (2017). Orthostatic Hypotension: A Practical Approach to Investigation and Management. *The Canadian Journal Of Cardiology*, 33(12), 1725–1728.
- Afilalo, J., Alexander, K. P., Mack, M. J., Maurer, M. S., Green, P., Allen, L. A., ... Forman, D. E. (2014). Frailty assessment in the cardiovascular care of older adults. *Journal of the American College of Cardiology (JACC)*, 63(8), 747–762.
- Bemben, N. M. (2016). Deprescribing: An Application to Medication Management in Older Adults. *Pharmacotherapy*, 36(7), 774–780.
- Chen, X., Mao, G., & Leng, S. X. (2014). Frailty syndrome: an overview. *Clinical Interventions In Aging*, 9, 433–441.
- Gorelik, O., Feldman, L., & Cohen, N. (2016). Heart failure and orthostatic hypotension. *Heart Failure Reviews*, 21(5), 529–538.
- Honda, S., Nagai, T., Sugano, Y., Okada, A., Asaumi, Y., Aiba, T., ... Anzai, T. (2016). Prevalence, determinants, and prognostic significance of delirium in patients with acute heart failure. *International Journal Of Cardiology*, 222, 521–527.
- Kubala, M., Guédon-Moreau, L., Anselme, F., Klug, D., Bertaina, G., Traullé, S., ... Hermida, J.-S. (2017). Utility of Frailty Assessment for Elderly Patients Undergoing Cardiac Resynchronization Therapy. *JACC. Clinical Electrophysiology*, 3(13), 1523–1533.
- Murad, K., & Kitzman, D. W. (2012). Frailty and multiple comorbidities in the elderly patient with heart failure: implications for management. *Heart Failure Reviews*, 17(4–5), 581–588.
- Morley, J. E. (2016). Frailty and Sarcopenia: The New Geriatric Giants. *Revista De Investigacion Clinica; Organo Del Hospital De Enfermedades De La Nutricion*, 68(2), 59–67.
- Olenek K, Skowronski T, & Schmaltz D. (2003). Assessment. Geriatric nursing assessment. *Journal of Gerontological Nursing*, 29(8), 5–9.
- O'Mahony, D., O'Sullivan, D., Byrne, S., O'Connor, M. N., Ryan, C., & Gallagher, P. (2015). STOPP/START criteria for potentially inappropriate prescribing in older people: version 2. *Age And Ageing*, 44(2), 213–218.
- Podsiadlo, D., & Richardson, S. (1991). The timed "Up & Go": a test of basic functional mobility for frail elderly persons. *Journal Of The American Geriatrics Society*, 39(2), 142–148.
- Reeve, E., Shakib, S., Hendrix, I., Roberts, M. S., & Wiese, M. D. (2014). Review of deprescribing processes and development of an evidence-based, patient-centred deprescribing process. *British Journal Of Clinical Pharmacology*, 78(4), 738–747.
- Tisminetzky, M., Gurwitz, J. H., Fan, D., Reynolds, K., Smith, D. H., Magid, D. J., ... Go, A. S. (2018). Multimorbidity Burden and Adverse Outcomes in a Community-Based Cohort of Adults with Heart Failure. *Journal of the American Geriatrics Society*, 66(12), 2305–2313.
- Thompson, W., Lundby, C., Graabæk, T., Nielsen, D. S., Ryg, J., Søndergaard, J., & Pottegård, A. (2019). Tools for Deprescribing in Frail Older Persons and Those with Limited Life Expectancy: A Systematic Review. *Journal of the American Geriatrics Society*, 67(1), 172–180.
- Wang, X., Zhou, C., Li, Y., Li, H., Cao, Q., & Li, F. (2018). Prognostic Value of Frailty for Older Patients with Heart Failure: A Systematic Review and Meta-Analysis of Prospective Studies. *BioMed Research International*, 1–9.
- Zhang, Y., Yuan, M., Gong, M., Tse, G., Li, G., & Liu, T. (2018). Frailty and Clinical Outcomes in Heart Failure: A Systematic Review and Meta-analysis. *Journal Of The American Medical Directors Association*, 19(11), 1003–1008.e1.



INSTITUT DE
CARDIOLOGIE
DE MONTRÉAL

APPLIÉE À
Université
de Montréal