Hôpital de Sion – 16 Février 2017

Troubles de la marche : l'importance du diagnostic

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Objectifs

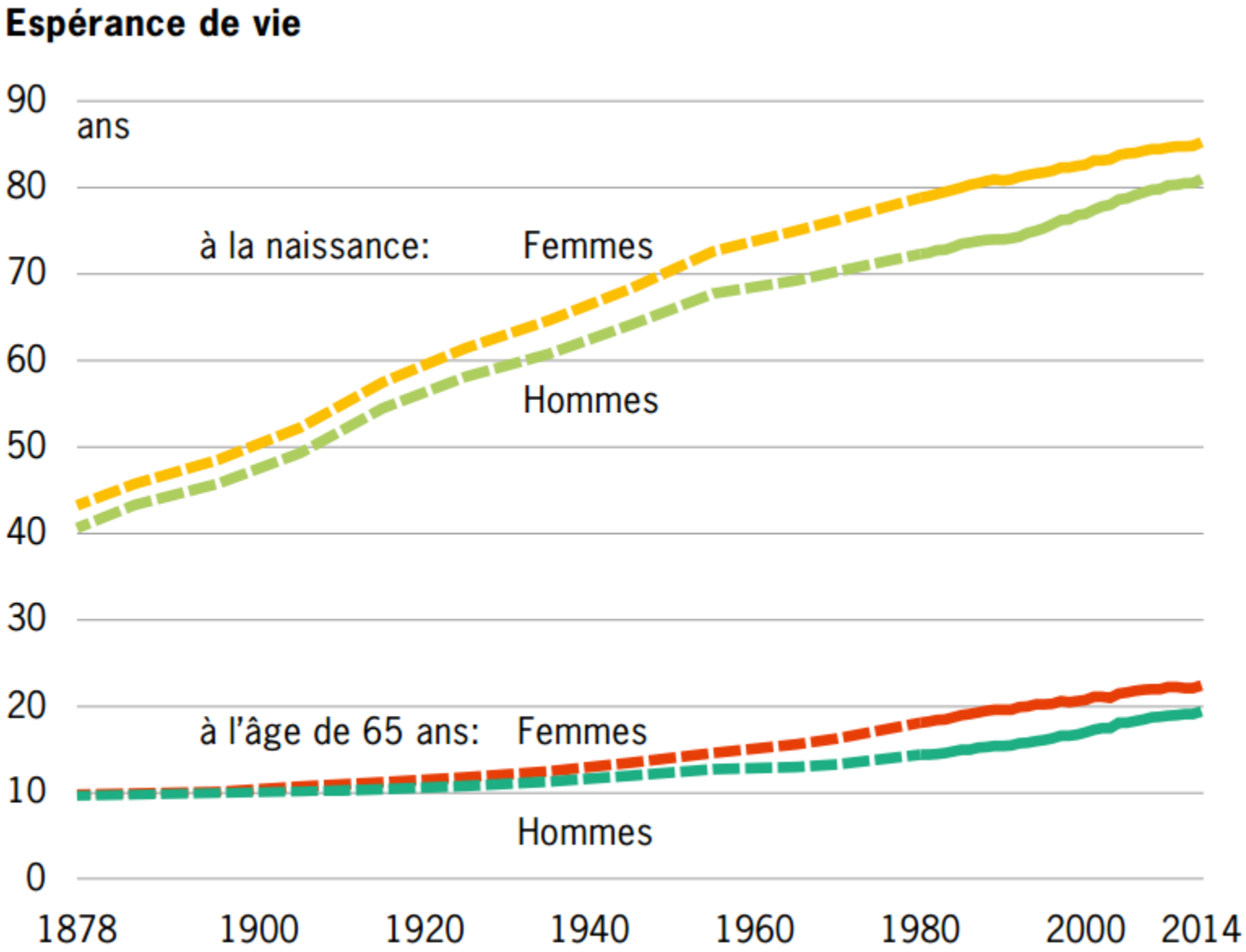
- Epidémiologie

- Evaluation des troubles de la marche

- Troubles de la marche dans la démence

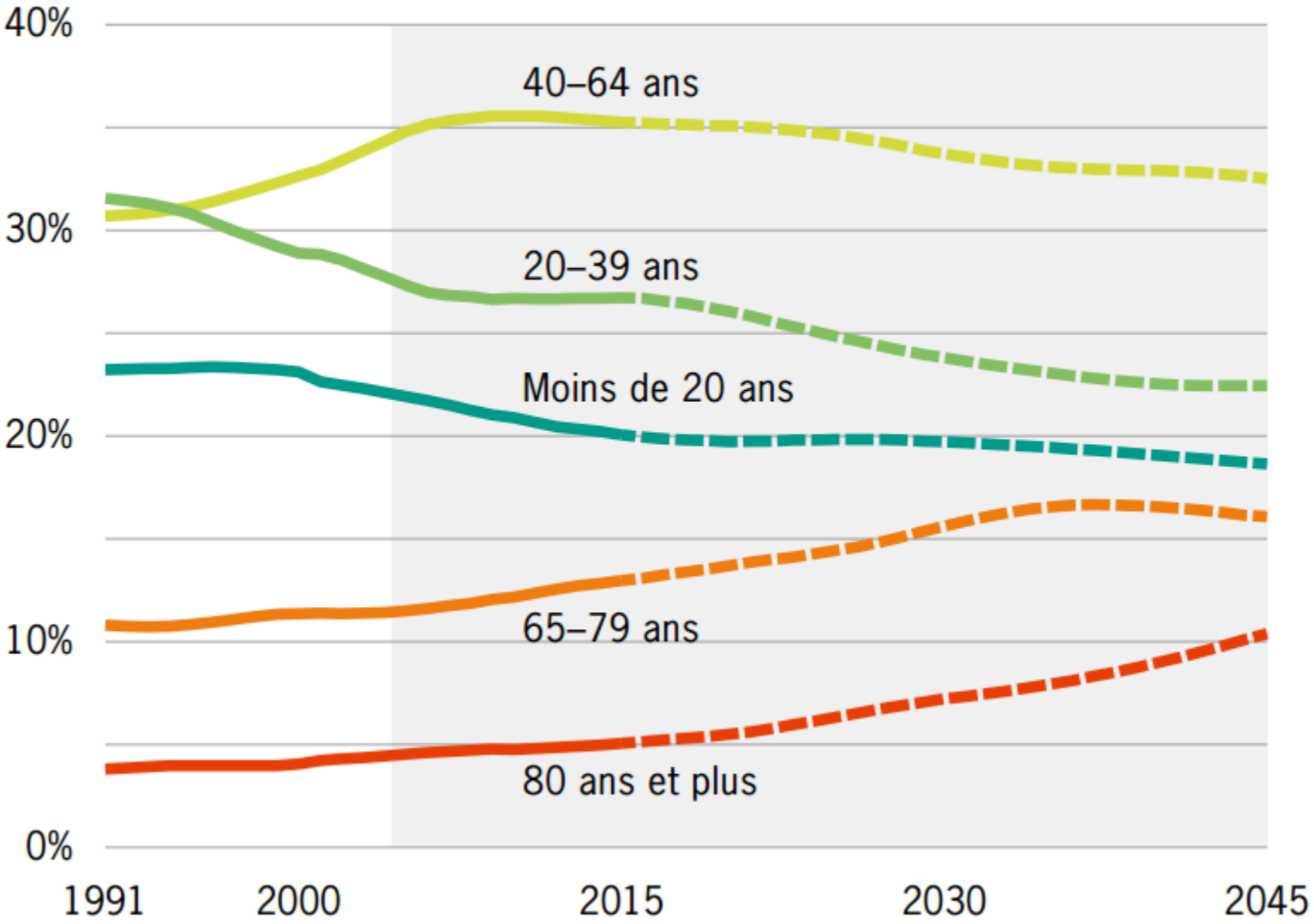
- Cas particulier de l’Hydrocéphalie à pression normale (HPN)

Problème de santé publique



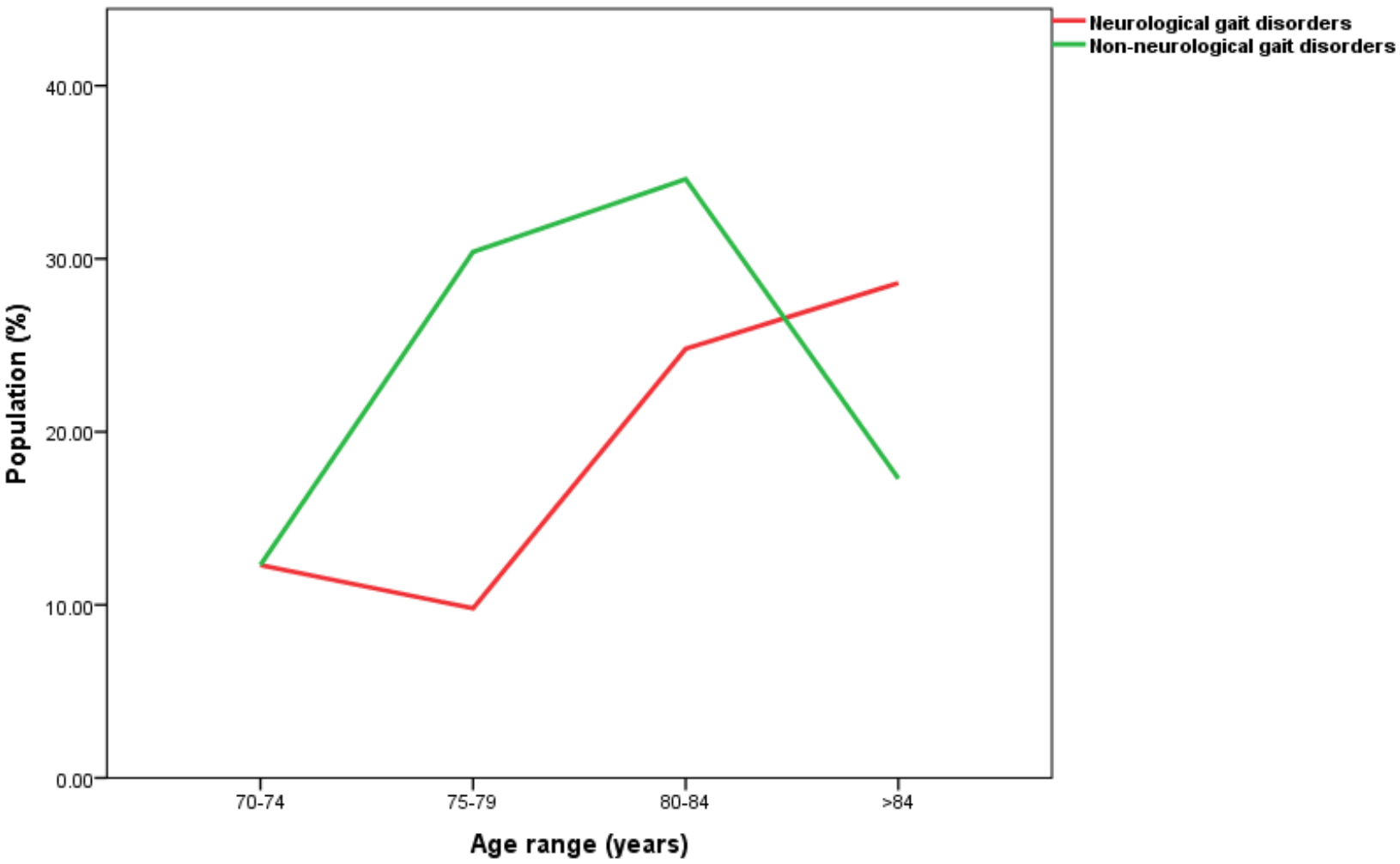
Source: Office fédéral de la statistique 2016

Groupes d'âges en % selon le scénario «moyen»



Source: Office fédéral de la statistique 2016

Epidémiologie des troubles de la marche dans le vieillissement



Verghese J et al. J Am Geriatr Soc 2006

Comment évaluez-vous les troubles de la marche?

Introduction

Table 1. Clinical characteristics (n=380)

Age (years)	76.5 ± 6.8
Female (%)	212 (55.8)
Education (years)	14.5 ±3.1
Slow gait[a], n (%)	59 (15.5)
Self-reported walking difficulty, n (%)	88 (23.2)
Clinical gait disorders, n (%)	184 (48.4)
Only 1 abnormal gait features, n (%)	115 (30.3)
Only 2 abnormal gait features, n (%)	72 (19.0)
Only 3 abnormal gait features, n (%)	24 (6.3)
Incident falls[b], n (%)	137 (36.1)

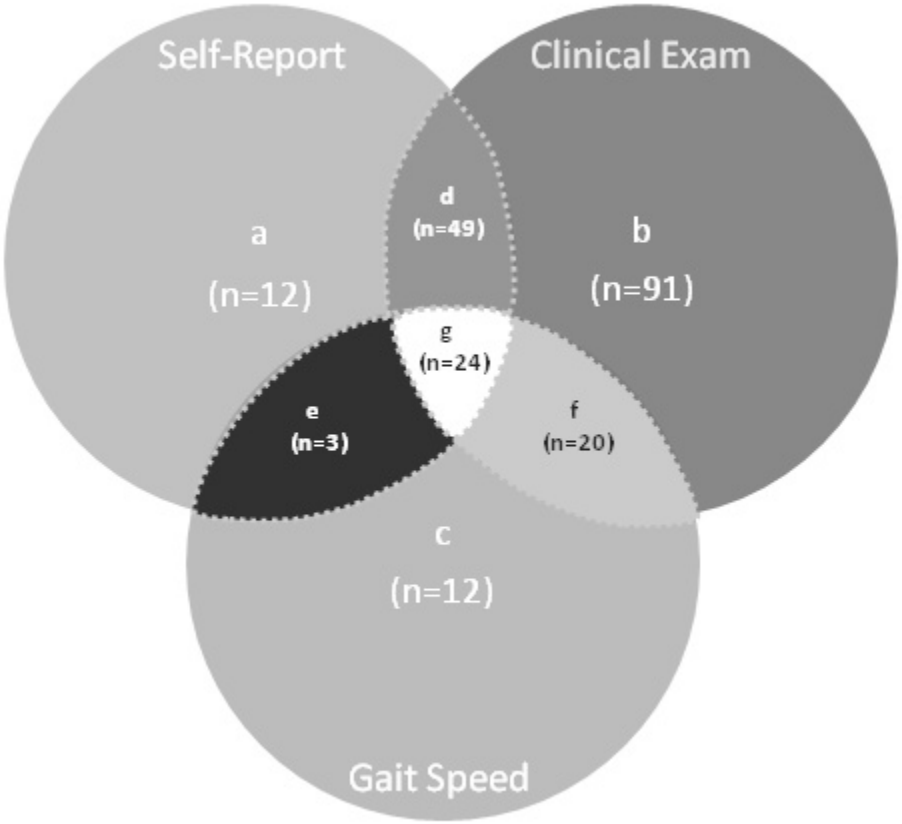
Only 1, 2, 3 abnormal gait features: only one, two or three feature(s) among slow gait, self-reported walking difficulty or clinical gait disorders;

[a]Slow gait velocity is defined as one standard deviation or more below age and sex-appropriate mean values;

[b]Any fall during the follow-up period.

Allali G et al. Arch Gerontol Geriatr 2015

Introduction



Healthy Older Adults (n=169)

Allali G et al. Arch Gerontol Geriatr 2015

Table 2. Abnormal gait assessments and incident falls (adjusted for age, gender, education and presence of fall in the previous year of enrollment)

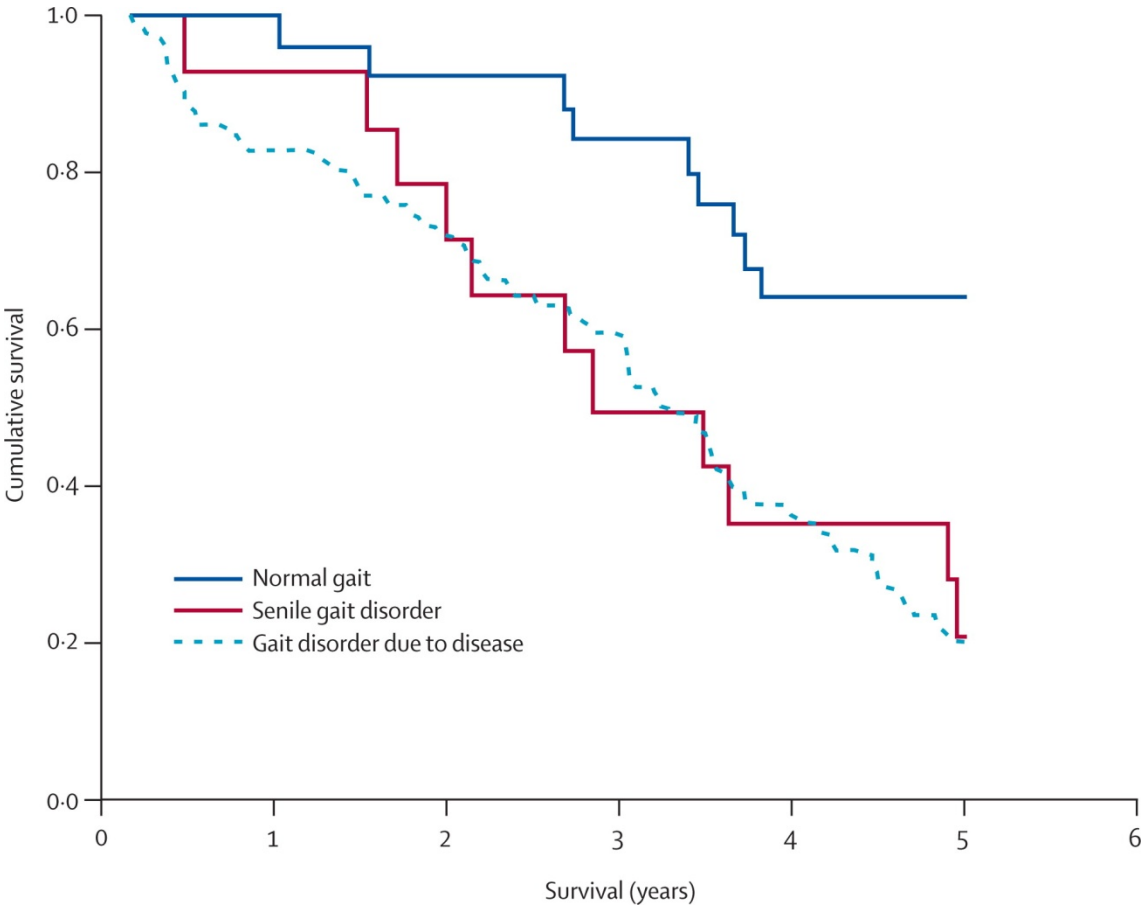
Assessments	N	Fallers (%)	HRs	95% CI	P-value
Modes					
Reference Group*	169	29.6			
Only one abnormal	115	39.1	1.33	0.88-2.01	0.170
Two or more abnormal	96	43.8	1.61	1.04-2.49	**0.032**

*Healthy older adults without any abnormal gait assessment.

Allali G et al. Arch Gerontol Geriatr 2015

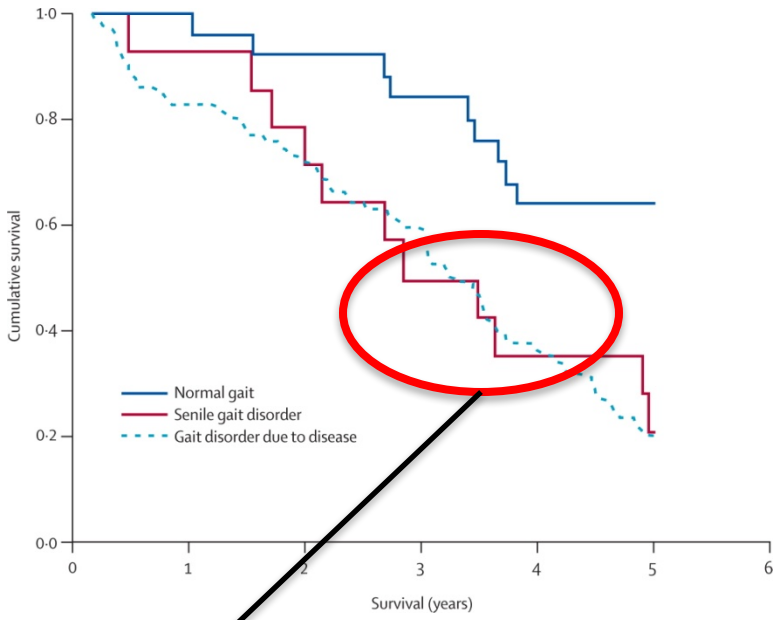
Introduction

Importance du diagnostic



Snijders AH et al. Lancet Neurol 2007

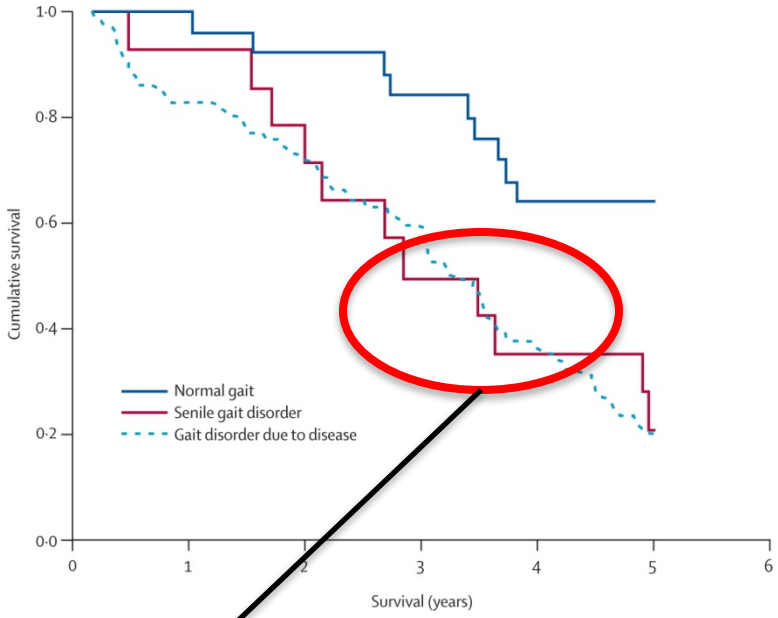
Introduction



56 % **44 %**

Non-neurologique **Neurologique**

Introduction



56 %

44 %

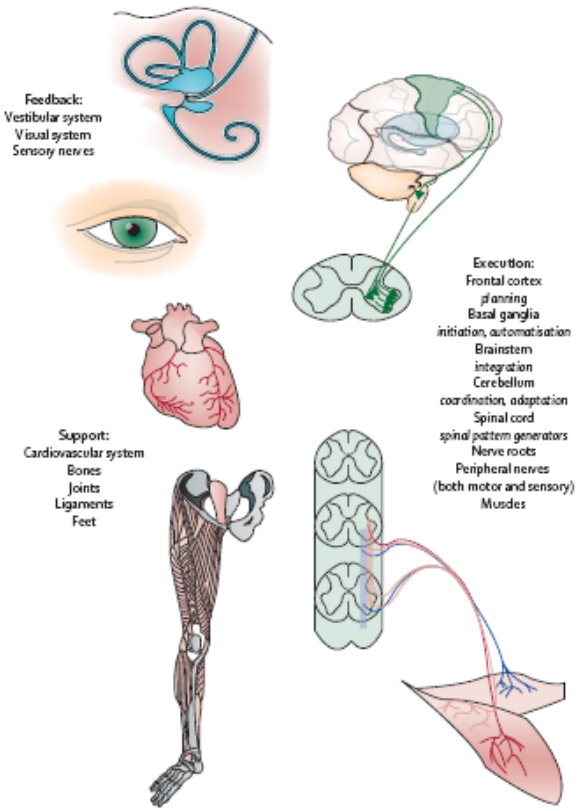
Non-neurologique

Neurologique

↑ risque de chute (risk ratio 1.49, 95% CI 1.11-2.00)
Verghese J et al. J Neurol 2010

↑ risque de démence (risk ratio 1.95, 95% CI 1.30-2.96)
Verghese J et al. N Engl J Med 2002

La Marche est une fonction multimodale



Snijders AH et al. Lancet Neurol 2007

Différentes classifications

Type	Exemples
Hiérarchique	Bas, moyen, haut niveau
Anatomique	Frontale, cérébelleuse
Etiologique	Vasculaire, neurodégénératives
Phénoménologique	Ataxique, parkinsonienne, etc

Exemple de Classification

Type	Characteristics	Neurological conditions
Unsteady	Marked sway, loss of balance or falls while the individual is walking in straight line, placing one foot directly in front of the other.	Multiple sclerosis (early stage)
Ataxic	Wide-based gait with other cerebellar features, such as intention tremor or incoordination.	Wernicke encephalopathy Chronic alcohol consumption Cerebellar stroke Multiple system atrophy Spinocerebellar ataxia
Frontal	Short steps, wide-based, magnetic, very slow, symmetric.	Normal pressure hydrocephalus Vascular dementia Progressive supranuclear palsy Alzheimer's disease (later stages)
Parkinsonian	Short and shuffling steps, flexed posture, "en bloc" turns, absence of arm swinging.	Parkinson's disease Dementia with Lewy bodies Chronic neuroleptic consumption
Neuropathic	Uni or bilateral foot drops and other neuropathic signs, such as sensory loss or absence of deep-tendon reflexes.	Diabetes with neuropathy Toxic neuropathy (e.g. chimiotherapy) Guillain-Barré syndrome Chronic polyradiculonevritis
Hemiparetic	Asymetrical circumduction of the hip in addition to other focal signs of stroke (e.g. aphasia).	Frontal or subcortical strokes
Spastic	Bilateral legs circumduction, legs crossing (when severe).	Multiple sclerosis (later stages) Anterior spinal cord conditions (e.g.tumor, compression)

Nutt J, Neurology 1993

Troubles de la marche chez le patient avec troubles cognitifs

Troubles de la marche chez le patient avec troubles cognitifs

Diagnostic différentiel
Démence vasculaire
Maladie à corps de Lewy/Parkinson avec démence
Paralysie supranucléaire progressive
Dégénérescence corticobasale
Multifactorielle (maladie d'Alzheimer avec comorbidités)
Médicaments (i.e. BZD, anti-HTA), OH
Hydrocéphalie à pression normale

Exemple

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Nutt J, Neurology 1993

Marche frontale versus parkinsonienne

Table 1
Clinical and neuropsychological features in subjects with frontal gait and parkinsonian gait

	Frontal (N=11)	Parkinson (N=9)	P-value
Age, years	84.5±5.2	77.7±4.8	0.007
Men, *n*	4	5	0.91
Education, years	13±4.6	10.8±4.3	0.24
Clinical signs			
Hypomimia, *n*	1	8	0.001
Rest tremor, *n*	0	6	0.001
Cogwheel rigidity, *n*	0	5	0.01
Retropulsion, *n*	2	5	0.22
Bradykinesia, *n*	5	9	0.03
Frontal release signs, *n*	6	2	0.03
Falls, *n*	2	7	0.02
Neuropsychological tests			
Blessed test, total	4.5±4.5	4.1±3.6	0.81
FCSRT total recall, points	45.2±4.6	47.2±1.7	0.22
Executive function			
Digit span, total	12.4±5.5	11.1±2.3	0.76
Digit symbol substitution, total	28.9±14.8	26.9±8.9	0.88
Verbal fluency test, points	28.3±10.3	17±6.1	0.009
Trail making test B, s	215±123	245±103	0.50

Parkinsonism

Ambrose, J Neurol Sci 2006

	incoordination.	Multiple system atrophy Spinocerebellar ataxia
Frontal	Short steps, wide-based, magnetic, very slow, symmetric.	Normal pressure hydrocephalus Vascular dementia Progressive supranuclear palsy Alzheimer's disease (later stages)
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Neuropathic	Uni or bilateral foot drops and	Diabetes with neuropathy

Syndrome pré-démence: Motoric Cognitive Risk Syndrome (MCR)

Définition: Marche lente + plainte cognitive

Epidémiologie:

Prévalence: 9.7% (parmi 26’802 personnes âgés de 17 pays);

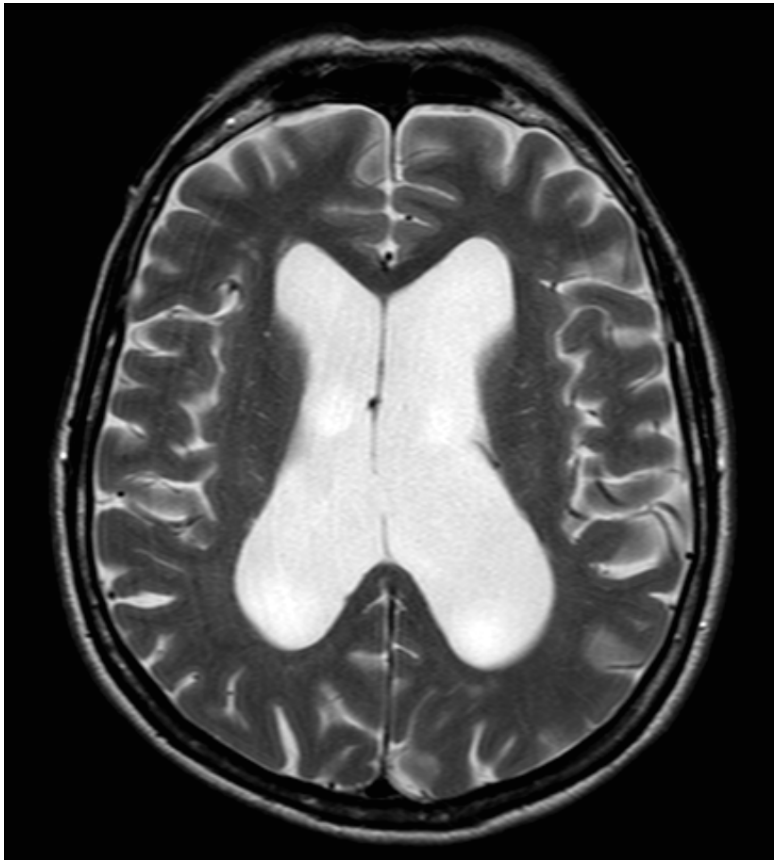
Incidence: 65.2/1000 personne-année;

Facteurs de risque: Age, AVC, Parkinson, dépression, sédentarité, obésité;

Démence: Risque augmenté de développé une démence (aHR 1.9, 95% CI 1.5-2.3).

Verghese et al. JGSM 2013; Verghese et al. Neurology 2014; Allali et al. JGSM 2016

Hydrocéphalie à Pression Normale



Troubles de la marche

Déficits cognitifs

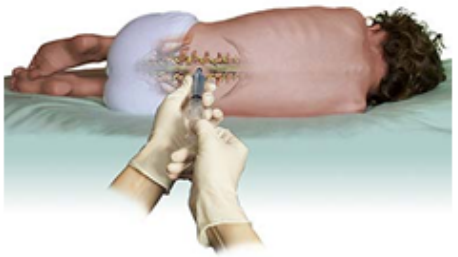
Incontinence urinaire

Aspecifique

Hydrocéphalie à pression normale: une approche standardisée

Evaluation ambulatoire en hôpital de jour de neurologie

Evaluation neuropsychologique
et
Examen quantitatif de la marche



Evaluation neuropsychologique
et
Examen quantitatif de la marche

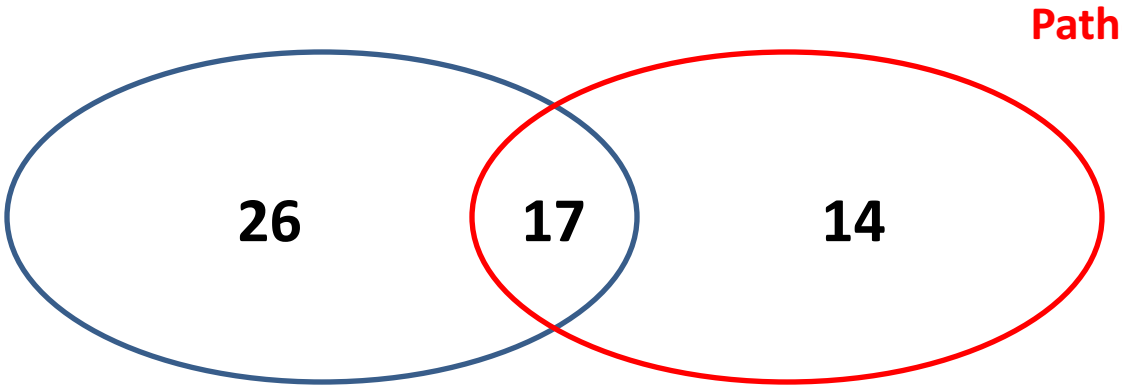
PL soustractive

Allali et al, Clin Neurol Neurosurg 2017

Hydrocéphalie à pression normale: l'identification des mimics

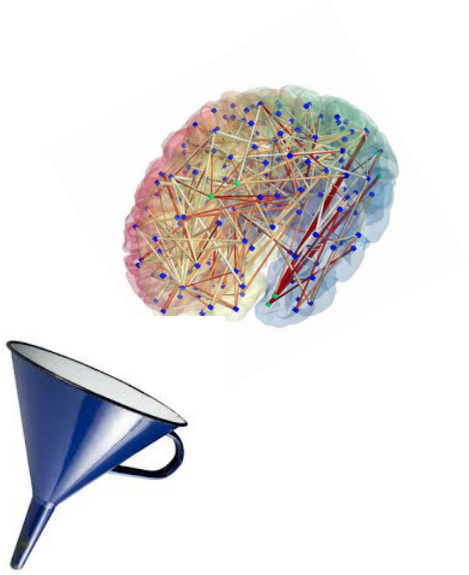
125 patients consécutifs avec suspicion d'hydrocéphalie à pression normale

Age	75.9 ± 7.4
Femme	34.4 %
HPN mimics	**46%**



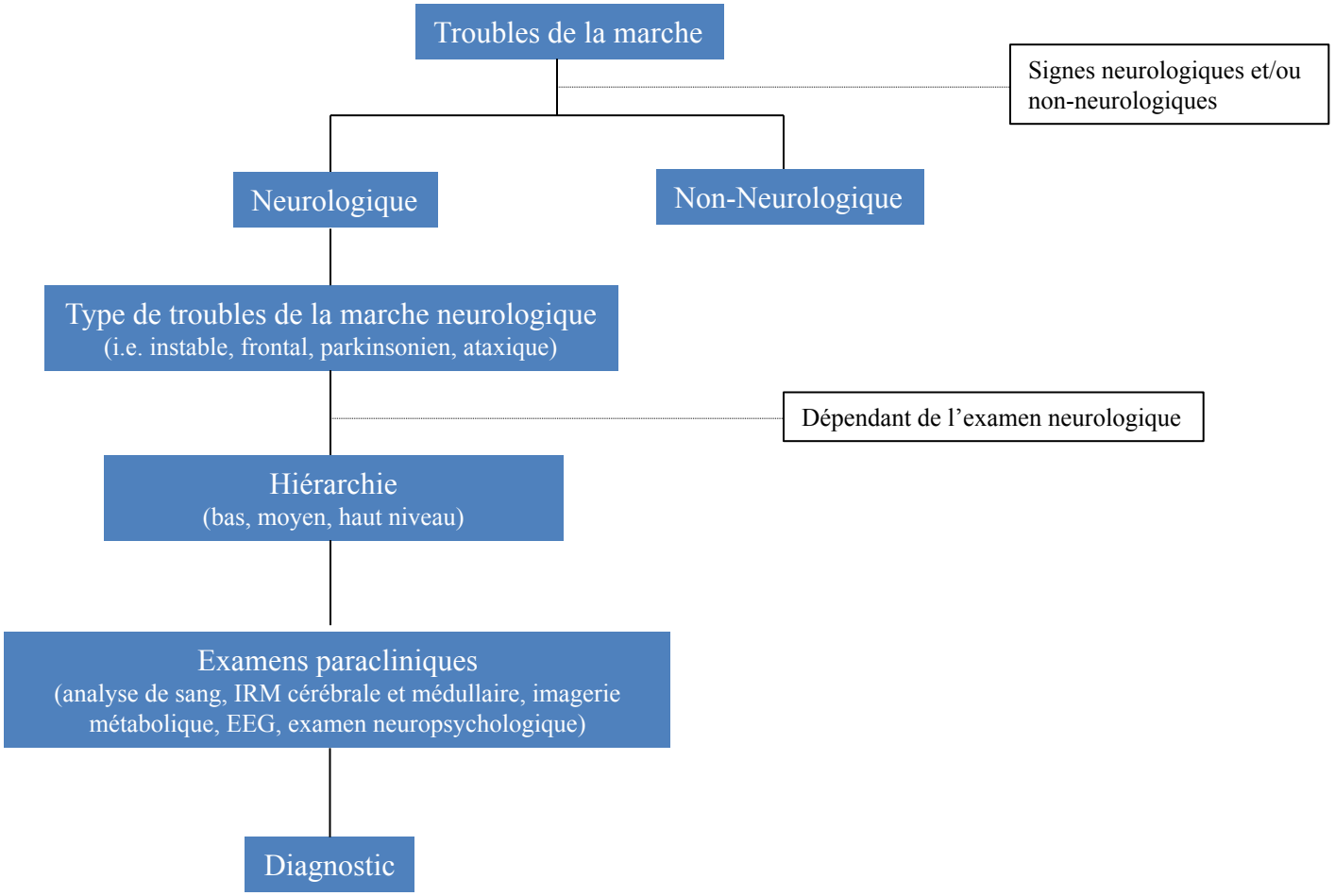
Allali et al, Clin Neurol Neurosurg 2017

- Les troubles de la marches sont complexes;
- Associés à un risque accru de développer une démence;
- Ne pas manquer de causes réversibles comme l'hydrocéphalie à pression normale



MARCHE

Et nécessite une approche standardisée:



Merci pour votre attention

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