
PLACE DES BIOMARQUEURS DANS LE BILAN ÉTIOLOGIQUE

GB FRISONI – CENTRE DE LA MÉMOIRE, HUG



**Renouveau du diagnostic et de la prise
en charge du déclin cognitif lié à l'âge**

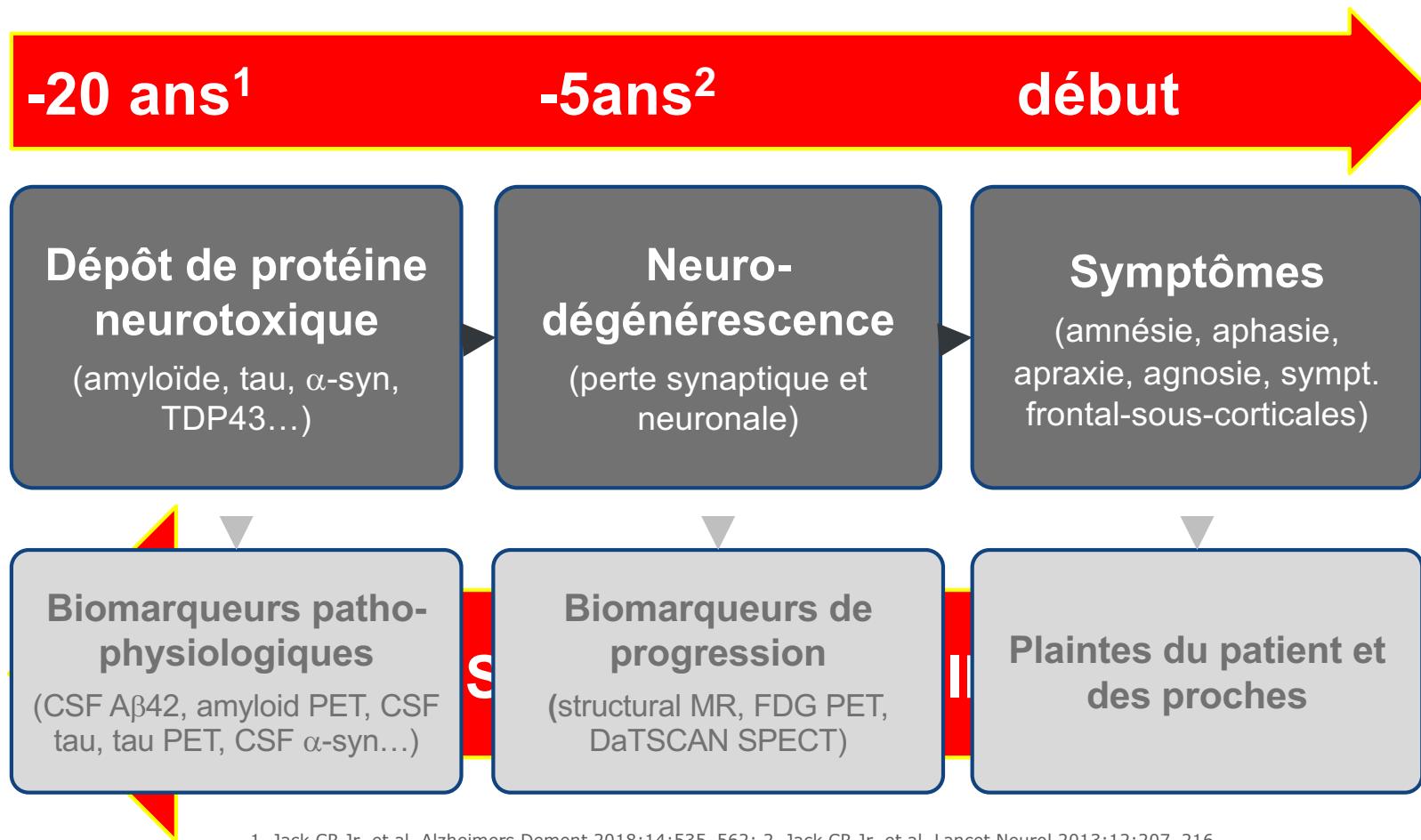
6^{ème} Cours lémanique
Jeudi 21 janvier 2021 de 8h45 à 13h00
en visioconférence – sur inscription

Séminaire organisé par le Centre Leenaards de
la Mémoire et le Centre de la mémoire HUG

Suite of biomarkers for the clinical diagnosis

	Structural MR Neuronal degeneration	Glucose PET Synaptic degeneration	DaTscan SPECT Nigrostriatal degeneration	Amyloid PET Amyloid deposition	Tau PET Tau deposition	CSF biomarkers Amy&Tau metabol
Normal						Ab42 = Tau = NfL =
AD						Ab42 ↓↓ Tau ↑↑ NfL ↑
FTD						Ab42 = Tau ↑=↓ NfL ↑
DLB						Ab42 =↓ Tau ↑ NfL ↑
					N.A.	

LES MÉCHANISMES BIOLOGIQUES DES MALADIES NEURODÉGÉNÉRATIVES



1. Jack CR Jr, et al. Alzheimers Dement 2018;14:535–562; 2. Jack CR Jr, et al. Lancet Neurol 2013;12:207–216

Emploie des biomarqueurs dans la pratique clinique

- Probabilité à priori
- Test
- Probabilité à posteriori

Change of post-test probability following negative MR scan (no MTL atrophy)

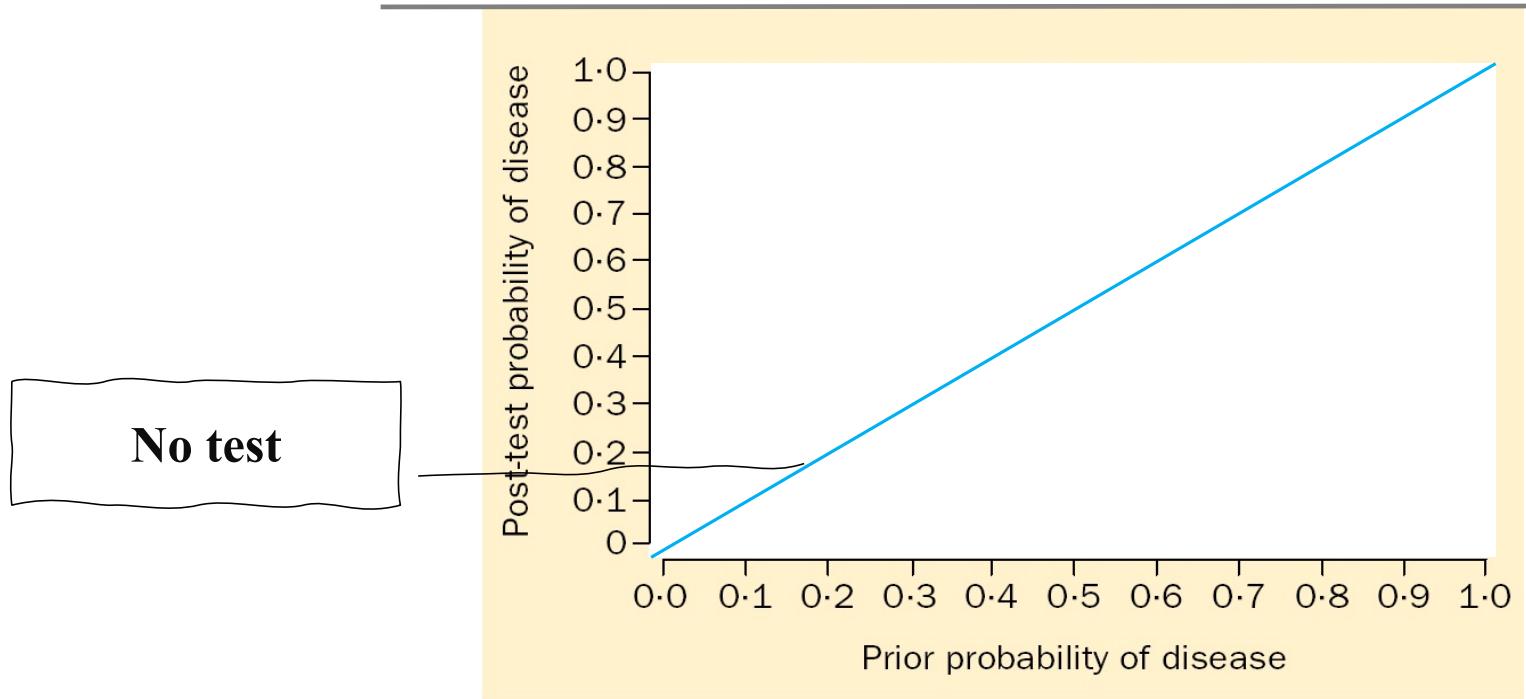


Figure 3. Post-test probability of disease with a test of sensitivity 85% and specificity 88% for any given pretest probability (prevalence of disease). The upper curve shows the incremental diagnostic gain from a positive result of a test (ie, presence of hippocampal atrophy on MRI) and the lower curve shows that from a negative result (absence of hippocampal atrophy on MRI).

Scheltens et al., Lancet Neurol 2002

Change of post-test probability following negative MR scan (no MTL atrophy)

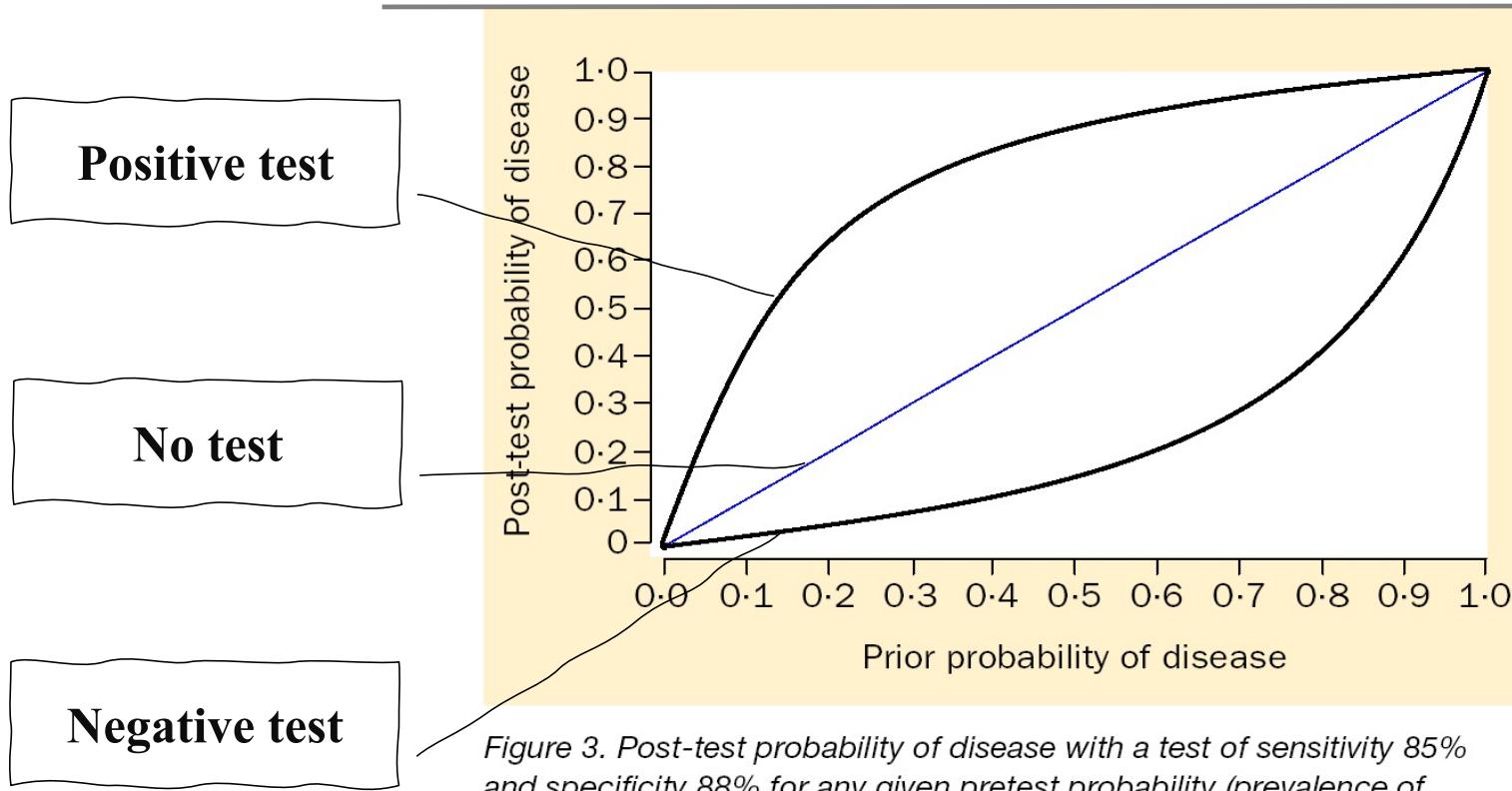


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Increasing probability for AD following positive MR scan (MTL atrophy pos.)

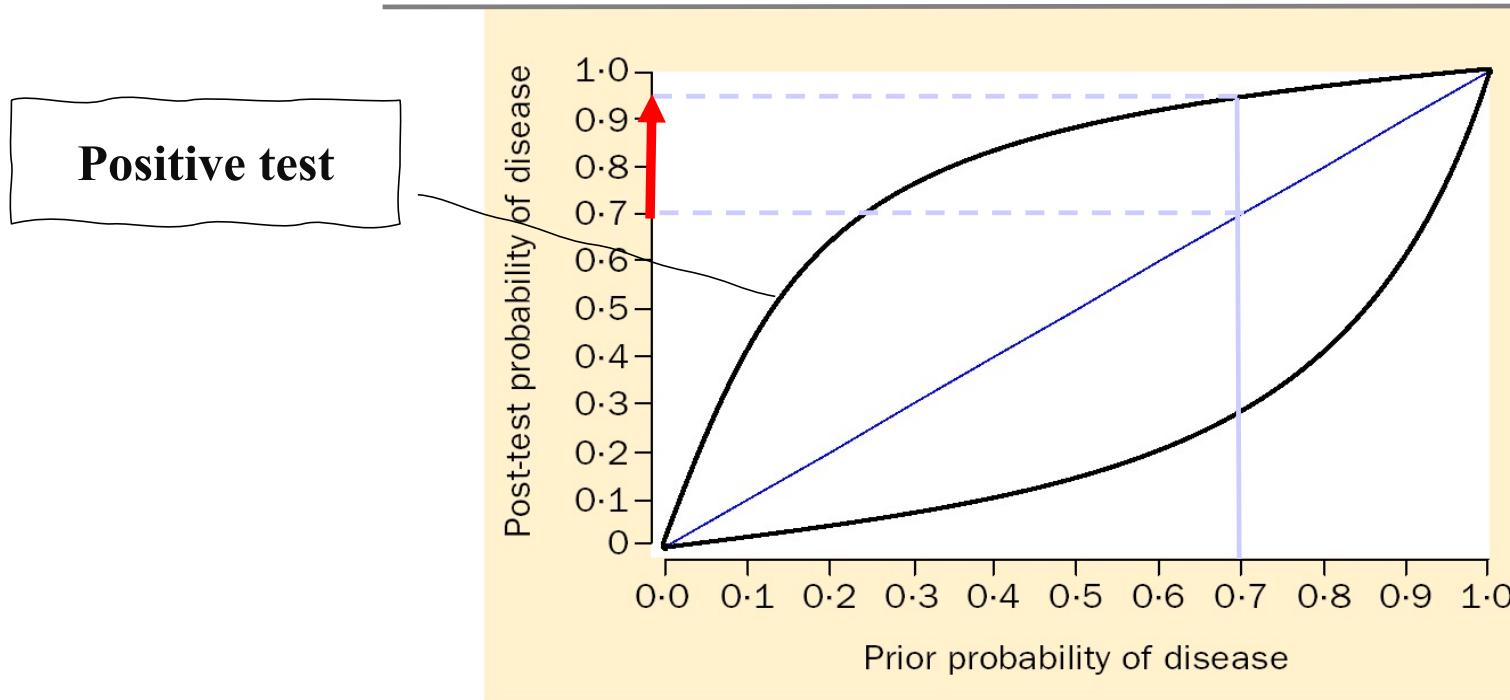


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Scheltens et al., Lancet Neurol 2002

Decreasing probability for AD following negative MR scan (no MTL atrophy)

Negative test

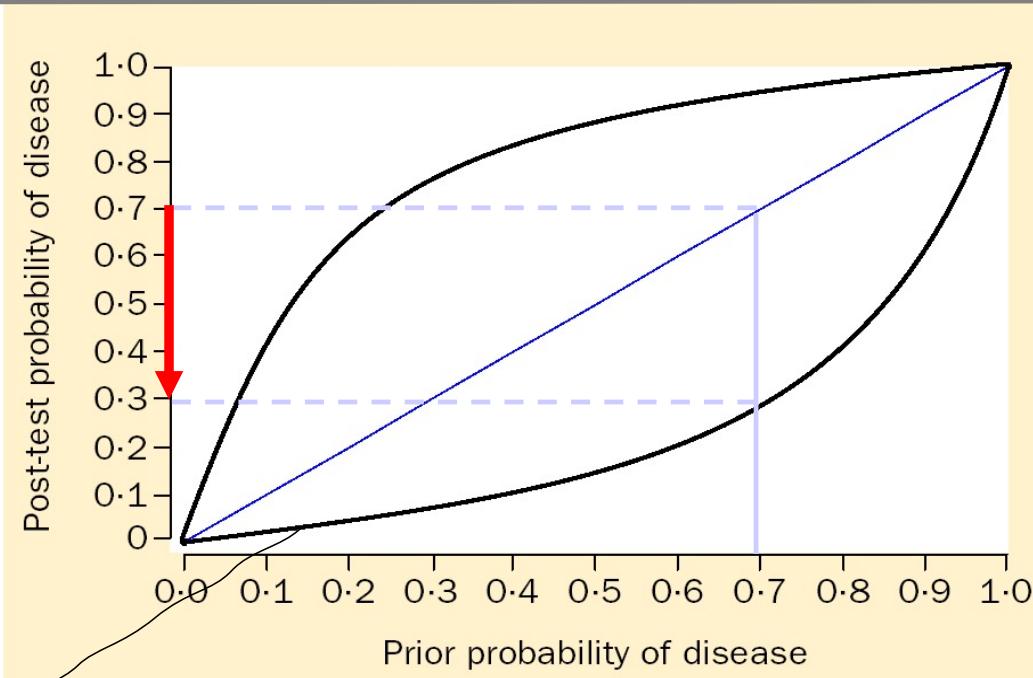
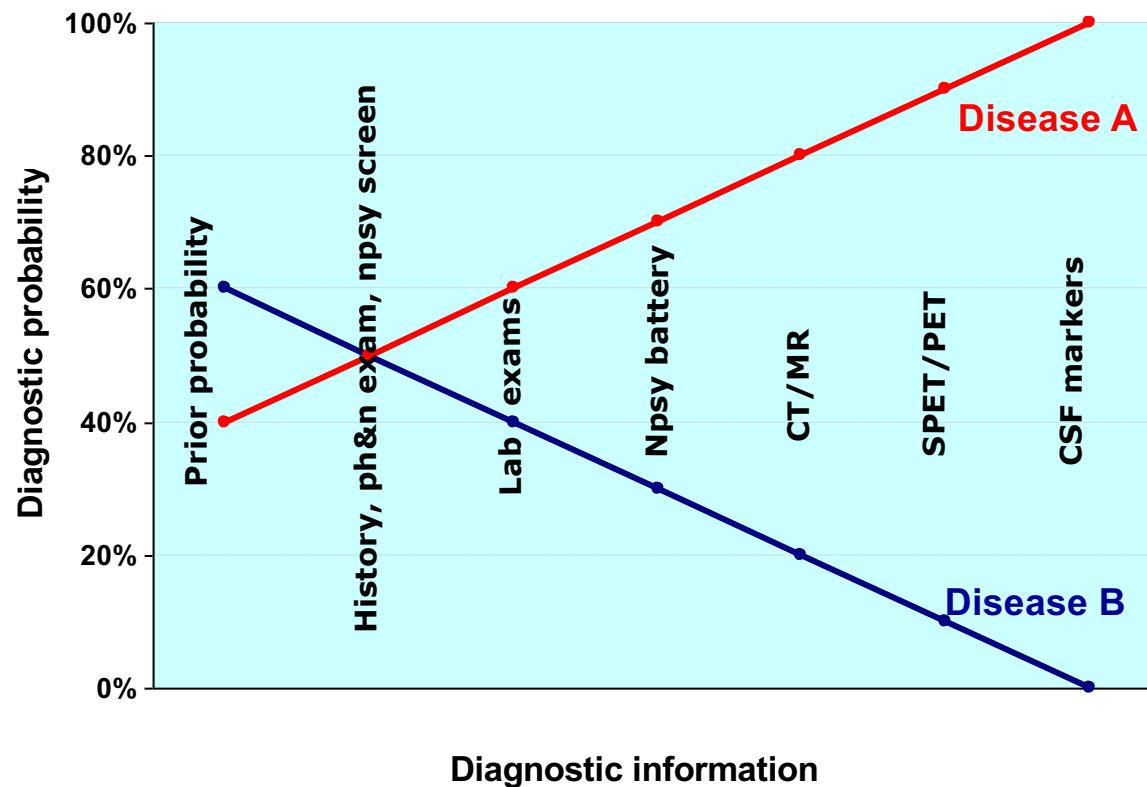


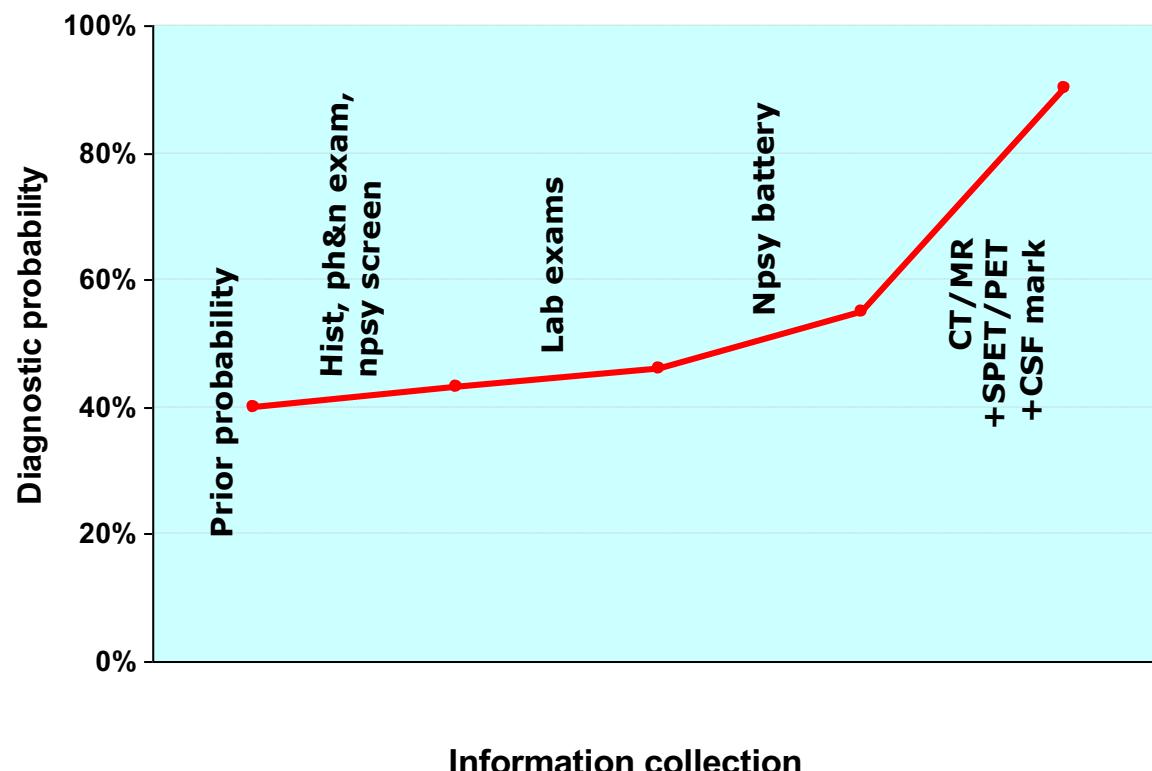
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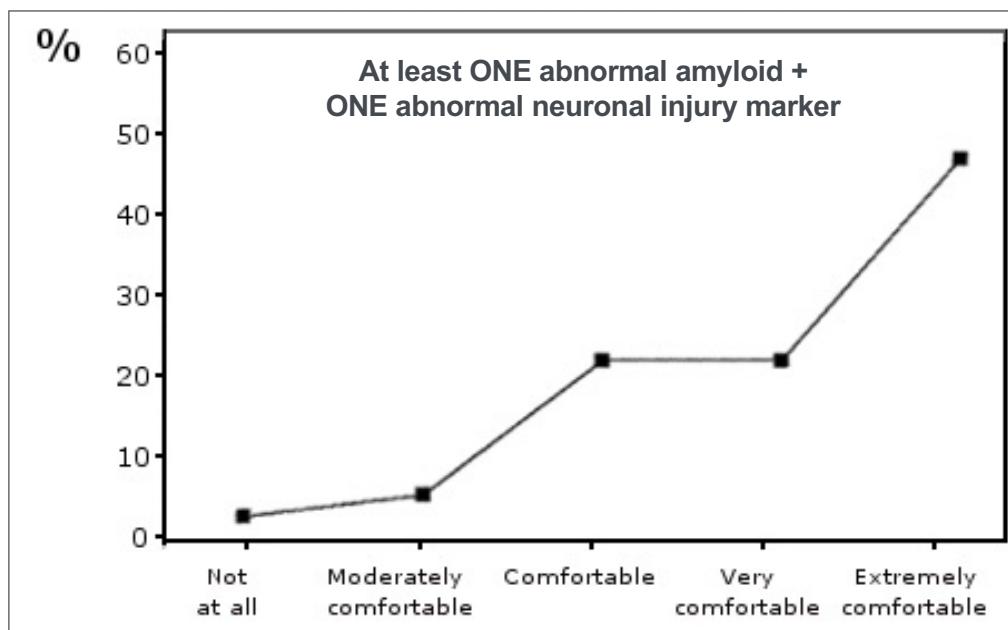
Incremental value of information in the clinical diagnosis of dementia



Incremental diagnostic value of exams to detect predementia AD in MCI patients



Clinical vignette of MCI patient with suspected AD



Bocchetta et al. for the Disease Markers Special Interest Group of the European Alzheimer's Disease Consortium. Alzheimers Dement 2015

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Redundancy between amyloid PET and CSF Ab42

		AmyPET(visual)	
		negative	positive
CSF_Ab42	negative	22 79%	6 13%
	pos <750	6 21%	41 87%
		28	47

Agreement
83%

76 patients from Geneva CDR 0 to 2

Redundancy between tau PET and CSF tau

	TauPET (Braak stages)	CSF Total tau		
		negative	pos >360	
0		9 69%	5 22%	
I-II		1 8%	3 13%	
III-IV		1 8%	4 17%	
V-VI		2 15%	11 48%	
		13	23	

Agreement
0-I-II vs III IV V VI
68%

	TauPET (Braak stages)	CSF p-tau		
		negative	pos >60	
0		9 60%	5 24%	
I-II		1 7%	3 14%	
III-IV		2 13%	3 14%	
V-VI		3 20%	10 48%	
		15	21	

Agreement
0-I-II vs III IV V VI
62%

37 patients from Geneva CDR 0 to 2

Redundancy between amyloid PET and tau PET

		AmyPET (visual inspection)			
		negative		positive	
TauPET (Braak stages)	0	59	82%	16	17%
	I-II	10	14%	11	12%
	III-IV	1	1%	16	17%
	V-VI	2	3%	51	54%
		72		94	

162 patients from Geneva and Lausanne CDR 0 to 2

Agreement
0-I-II vs III IV V VI
81%

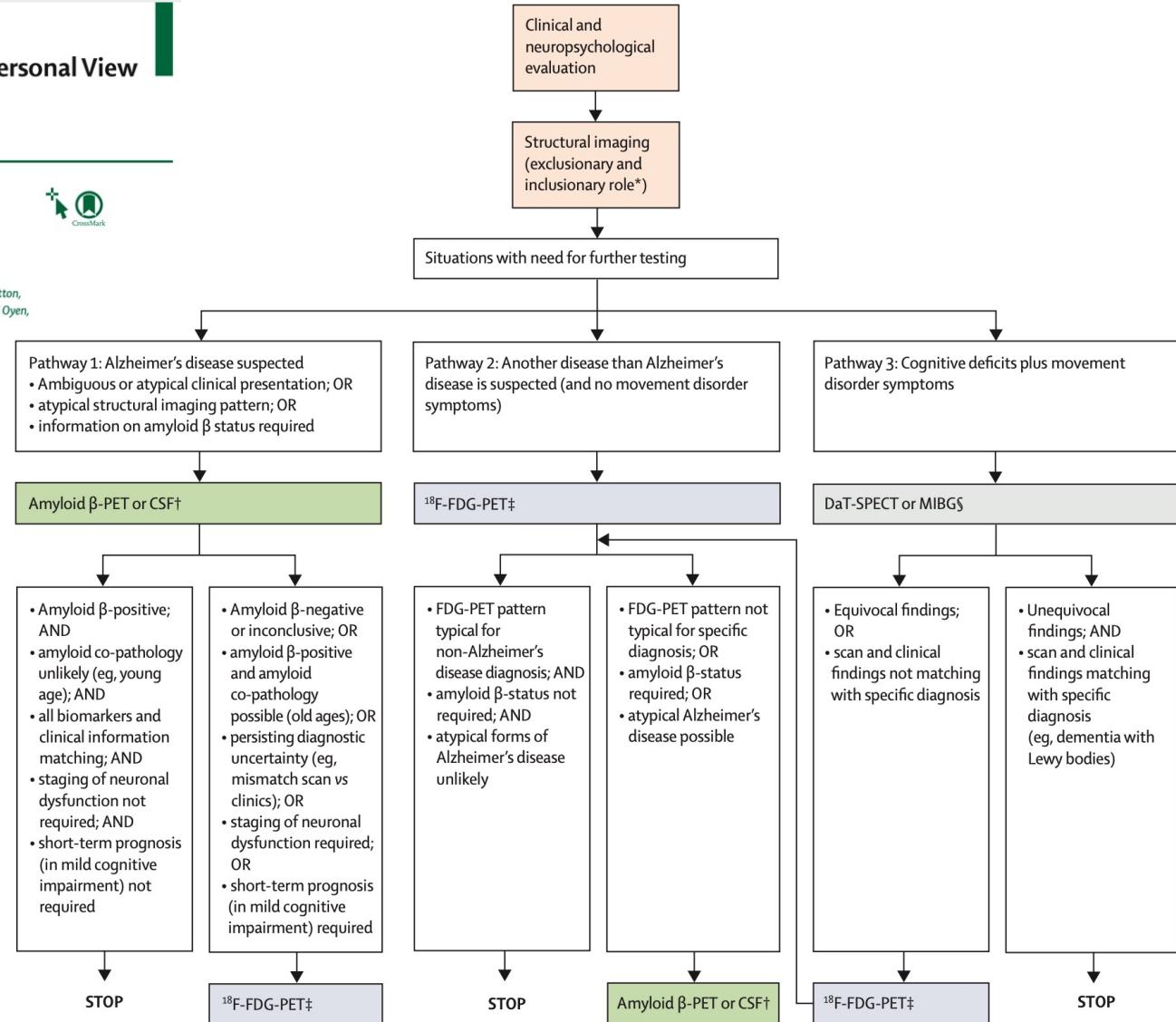
Amyloid-PET and ^{18}F -FDG-PET in the diagnostic investigation of Alzheimer's disease and other dementias



Gaël Chételat, Javier Arbizu, Henryk Barthel, Valentina Garibotto, Ian Law, Silvia Morbelli, Elsmarieke van de Giessen, Federica Agosta, Frederik Barkhof, David J Brooks, María C Carrillo, Bruno Dubois, Anders M Fjell, Giovanni B Frisoni, Oskar Hansson, Karl Herholz, Brian F Hutton, Clifford R Jack Jr, Adriana A Lammertsma, Susan M Landau, Satoshi Minoshima, Flavio Nobili, Agneta Nordberg, Rik Ossenkoppele, Wim J Oyen, Daniela Perani, Gil D Rabinovici, Philip Scheltens, Victor L Villemagne, Henrik Zetterberg, Alexander Drzezga

Lancet Neurol 2020; 19: 951–62

Place des biomarqueurs dans le bilan étiologique



Recommendations for the Biomarker-Based Diagnosis of Dementia. A European Inter-Societal Delphi Consensus

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Flavio Nobili, University of Genova, Project co-P.I.

Cristina Festari, IRCCS Fatebenefratelli, Project manager

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EANM – European Association of Nuclear Medicine	1. Silvia MORBELLI 2. Valentina GARIBOTTO	UEMS - European Union of Medical Specialists	1. Francesca PIZZINI 2. Vanninen RITVA
ESNR – European Society of Neuroradiology	1. Tarek YOUSRY 2. Meike VERNOOIJ	EADC- European Alzheimer Disease Consortium	1. Lutz FROELICH 2. Frank JESSEN
EAGP - European Association of Geriatric Psychiatry	1. Frans VERHEY 2. Mathieu VANDENBULCKE	E-DLB - European DLB Consortium	1. Dag AARSLAND 2. John O'BRIEN
FESN – Federation of the European Societies of Neuropsychology	1. Stefano CAPPA 2. Roy P.C. KESSELS	FTD – European FTD network	1. Barbara BORRONI 2. Markus OTTO
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**Association Suisse pour la
Recherche sur l'Alzheimer (APRA)**

