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Biological markers for Neurodegenerative diseases

Section 1/3: Analysis selection and confounding factors

Mandatory Information:

Patient's name / Date of birth: _____ Patient's personal data/ hospital sticker

Date of CSF sampling: _____

Rapid progressive neurodegeneration
Slow progressive neurodegeneration

Clinical duration: _____ months

Age at onset: _____

MMSE: _____ / 30 MOCA: _____ / 30 CDR-SB: _____ / 18 CDR-GS: _____ / 3 Date: _____

eGFR: _____ Date: _____

APOE ε4 status (if known): no ε4 allele / homozygous / heterozygous (Brum et al. Nature Aging 2023)

BMI: <18.5 Underweight / 18.5-25 Normal / 25-30 Overweight / >30 Obese Date: _____

Clinical diagnose: _____

Clinical symptoms at onset:	Complaints of memory and/or orientation	Pure cerebellar onset	Fazekas (cerebrovas. DWM lesions)
	Behavioural symptoms	Stroke-like onset	
	Language difficulties	Pure psychiatric onset	
	Isolated visual symptoms	Sensory symptoms at onset	
	Extra pyramidal onset	Other _____	

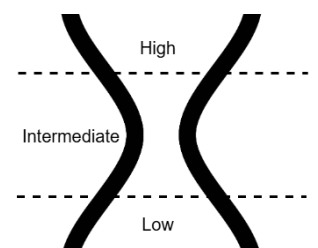
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Clinical remarks: _____

CSF:

dd Alzheimer's Disease (AD) ATN profiling based on proteins: $A\beta_{1-42}$, $A\beta_{1-40}$, tTau, pTau₁₈₁ www.uantwerpen.be/ad-atn-interpretation Clin Chem Lab Med. 2021 Nov15;60(2):207-219 2x 1ml CSF + 2x 1ml EDTA Plasma (into 1,5ml PP tubes) www.uantwerpen.be/sampling Ref. EC/PM/AL/2021.020 'prospective sampling and storage' www.uantwerpen.be/icfprospect Analysis cost: labogids.uza.be/analyses	ddCreutzfeldt-Jakob Disease (CJD) - NRC-ddCJD Proteins: 14-3-3 / PrPsc (RT-QuIC) RT-QuIC inclusion only IF : - The diagnostic criteria 'possible CJD' according to the WHO/ECDC have been met, - OR 14-3-3 protein analysis returned (weak) positive, - OR tTau concentration is >1200pg/mL, - OR tTau / pTau ratio is ≥14. Acta Neurol Belg 2018 Sep;118(3):395-403 2x 1ml CSF (into 1,5ml PP tubes) Analysis cost: no cost (due to NRC-ddCJD Consortium)
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EDTA Plasma:

dd Alzheimer's Disease (AD) Probability assessment based on proteins: pTau₂₁₇ Disclaimer: - Presence of objective cognitive deficits necessary. - Result can be affected by kidney function and BMI. - Analysis designated RUO pending CE-IVD; may serve as an early, less-invasive prob. assessment indicating early pathological changes, to be confirmed by standard CSF-based ATN profile. If result returns intermediate, an additional CSF analysis (4 AD markers) will be required. Clin Chem Lab Med. 2021 Nov15;60(2):207-219 2x 1ml EDTA Plasma (into 1,5ml PP tubes) www.uantwerpen.be/sampling Ref. EC/PM/AL/2021.020 'prospective sampling and storage' (www.uantwerpen.be/icfprospect) Analysis cost: labogids.uza.be/analyses	 Fig: EDTA plasma pTau₂₁₇ distribution in patients with cognitive deficits.
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Please complete specific clinical findings on next page



Patient's name / Date of birth: _____

Section 2/3: Clinical information, imaging and surveillance**Clinical evolution:**

Yes No ?

progressive dementia

memory disturbances

orientation difficulties (space/time)

attention difficulties / distractibility

behavioural changes: apathy

behavioural changes: loss of empathy

behavioural changes: disinhibition

hyperorality

perseverative / stereotyped / compulsive behaviour

executive dysfunction

language difficulties / aphasia

dysarthria

akinetic mutism

verbal apraxia

Yes No ?

limb apraxia

visuospatial dysfunction

hallucinations or delusions

REM sleep behaviour disorder

falls

loss of consciousness

myoclonus

frontal release signs

ataxia / **cerebellar signs****pyramidal signs**parkinsonism / **extrapyramidal signs**

depression

*psychiatric problems**epilepsia***Neuro-imaging - if performed - tick when present****MRI / CT**

Normal

Abnormalities - non specific

Abnormalities - affecting striatum or neo-cortex

High signal in caudate lobe and putamen

High signal in posterior thalamus > other areas

Cortical ribbon sign

Enlargements - ventricular

Atrophy - cerebellar

Atrophy - cerebral

/ Predominant regions

frontal L R

temporal L R

parietal L R

occipital L R

/ Global atrophy

GCA = 0

GCA = 1

GCA = 2

GCA = 3

/ Temporal atrophy

MTA 0 L R

MTA 1 L R

MTA 2 L R

MTA 3 L R

MTA 4 L R

other: _____

EEG

Normal

Periodic sharp-wave complexes - triphasic

Slowing focal or diffuse

Slowing frontal or frontotemporal

Slowed alfa activity

Decreased beta activity

Increased theta and delta activity

other: _____

PET Amyloid

Neg

Pos

PET TAU

Neg

Pos

PET FDG predominant hypometabolism

frontal L R

temporal L R

parietal L R

occipital L R

other: _____

Additional information - Sciensano CJD Surveillance:**Specific risk factors**

Yes No ?

Ever had a stroke

Ever had a residence in UK

Ever had endoscopy

Ever had surgery

Ever had neurosurgery

Familial history of dementia

Year of stroke

When

When / which hospital

Surgery info

Neurosurgery info

Dementia type



Patient's name / Date of birth: _____

Section 3/3: Informed consent

To be confirmed by the patient:

Informed consent: it has been explained to me and I understand that:

1. Further protein analysis is proposed in order to investigate the cause of a neurodegenerative disorder in the patient mentioned on page 1.
2. The sample will be analyzed to determine the potential presence of the condition. Costs are associated with this analysis, except for NRC-ddCJD markers.
3. The physician will interpret the results of this analysis and discuss them with me.
4. I may be informed if a serious condition is incidentally discovered for which medical treatment and/or preventivemeasures are available.
5. This analysis does not exclude the presence of other conditions.
6. All data obtained from this study will be treated with strict confidentiality, and I retain the right to access and correct my data, cf. <https://www.uantwerpen.be/privacybeleid>.
7. The sample and associated data will be stored in the secure IBB-Neurobiobank (ID BB190113).
8. My sample and data can only be used for future research after approval by a Medical Ethics Committee and the IBB Neurobank Advisory Board. This is always done pseudonymously, with minimal necessary material, with residual material returned to the biobank. Both academic and commercial researchers can submit applications, according to the same conditions.
9. Future research may require additional clinical information, which may be requested from my treating physician by the managing physician of the IBB-Neurobiobank.
10. I can stop my participation at any time by informing my treating physician or at neurobiobank@uantwerpen.be. No new data will then be generated and I will receive written confirmation of this.
11. I can contact my treating physician for any further questions, with support from the Neurology Laboratory of the Born-Bunge Institute, University of Antwerp.

More information: www.uantwerpen.be/sampling / www.bornbunge.be

I give my consent for protein research through biomarker analysis and the inclusion of the sample in the IBB Neurobiobank:

For myself

As the patient's representative

Name: _____

Date: _____

Signature: _____

Opting out for the use of residual material for further scientific research: **Tick only if the patient makes objection.**

Applicant:

Name doctor: _____

Email: _____

RIZIV/INAMI nr: _____

Date: _____

Hospital: _____

Signature: _____

To the attention of the clinician:

Sample receipt, validation & reporting

Labo klinische biologie UZA, route 169
 Drie Eikenstraat 655
 2650 Edegem
 Dr. Khadija Guerti (riziv nr. 11943866860)

Analysis, interpretation & contextualisation:

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