



Information and Brokerage Event
Horizon Europe 2023 Call
Co-Funded by the DBT, Government of India



Call HORIZON-HLTH-2024-DISEASE-03-13-two-stage: Validation of fluid-derived biomarkers for the prediction and prevention of brain disorders

Date of the event : 31st May 2023

- TITLE of talk: **Prediction and Prevention of Brain Disorders**
- Name of presenter: **Dr. Vineela Rani N.V.N Chowdary**
- Name of Organisation: Gandhi medical College and Hospital under Director of Medical Education
- Country: INDIA
- Your contact details: **Contact no:9490424419**
Email id: dr.vineelarani@gmail .com

Project Description

Validating various parameters in body fluids & studying the Epigenetic modifications implicated in Neurodegenerative Disorders

- ❖ Neurodegenerative disorders as AD, PD, MCI, HD , ALS are characterized by progressive dementia and are a common cause of morbidity in older population.
- ❖ The cause is multifactorial and onset of these disorders starts years before the patient manifests.
- ❖ Lifestyle changes ,Oxidative stress , Nutritional Deficiencies have been studied for their possible role at Epigenetic level in early onset Dementia and NDDs.
- ❖ Screening of high risk population would help to prevent morbidity due to NDDs.

**Study Design: Family Cohort - Sample size : 1000 to 10000
(diagnosed cases & family members)
Gandhi Medical College & Hospital, Telangana**



**Analysing blood , urine , saliva for specific Proteins, vitamins ,
minerals , Amino Acids & metabolites at Biochemistry Laboratory &
MDRU**



**Positive cases subjected to CSF analysis , PET scan.
Genetic work up for all family members of positive cases at
MDRU**



**❖ An Inter-department and Multicentric approach to substantiate any
findings for indian population Follow up for minimum of 3 yrs and
subjecting to blood , urine & saliva analysis again**

Proteins : A β - 42 ,A β
42/40 A β - 40,,pTau
181,217,231 ;NfL
A β - 42 ,A β 42/40 B,GFAP

Vitamins:
B12 ,B6, B5.
vitamin A and D

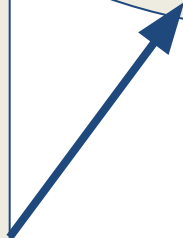
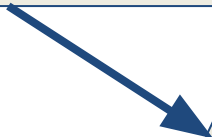
GENETIC

**Neurodegenerative
Disorders**
**Alzheimer's ,
Parkinsons , ALS,
MCI, HD , Familial
Dementia , Others**

EPIGENETIC

Metabolites:
alanine, leucine,
isoleucine, aminobutyric
acid, hydroxytryptophan,
cortisol, urinary
formaldehyde and
8-OHdG,creatinine

Minerals:
iron , magnesium , copper ,
calcium , lead , aluminium,
arsenic , cadmium , mercury



Body fluids and biomarkers

BODY FLUIDS	<u>Method</u>
<p>Blood (Serum and Plasma), Saliva , Urine & CSF</p>	<p>Proteins : Immunoassay - CLIA / ELISA ; Vitamins : HPLC / MS ; Minerals : HPLC ; Metabolites : LCMS/GCMS</p> <p>https://doi.org/10.1016/j.bionps.2023.100062 https://doi.org/10.3390/diagnostics11020371 https://doi.org/10.5607/en20042 https://doi.org/10.5607/en20042</p>
<p>Epigenetic and Genetic Studies</p>	<p>Alzheimer's : (<i>APP</i>, <i>PSEN1</i>, and <i>PSEN2</i>) , (<i>APOE</i>ε4 allele).</p> <p>Parkinson's: <i>GBA</i>, <i>LRRK2</i>, <i>PRKN</i>, <i>SNCA</i>, <i>PINK1</i>, <i>PARK7</i> and <i>VPS35</i>.</p> <p>Huntington's: HTT allele.</p> <p>Mild Cognitive Impairments.</p> <p>Amyotrophic Lateral Sclerosis.</p>

Rationale & Current Consortium

Minimal data is available in Indian population with regards to Neurodegenerative disorders and diagnostic tools amicable for screening of high risk population.

There is a need to study the role of Oxidative Stress and Nutritional deficiencies at Epigenetic and Genetic level to explain the early onset Dementia and Mild Cognitive Impairment.

Current consortium:

Doing a pilot study on Salivary Amyloid-Beta 42 in association with Nizam's Institute of Medical Sciences, Hyderabad

- ❖ Well equipped Laboratory and Multidisciplinary research unit are available at the Institute.
- ❖ Need funding with respect to few equipment , reagents and human resources.

Personal Details :

- Name of presenter: Dr. Vineela Rani N.V.N Chowdary, Assistant Professor.M.D (Biochemistry).
- Team - Neurologists , Clinical Biochemists, Research scientists(MDRU) , Postgraduates and Undergraduates.
- Name of Organisation: Gandhi medical College and Hospital under Director of Medical Education,Telangana State.
- Country: INDIA
- **Your contact details: Contact no:9490424419
Email id: dr.vineelarani@gmail .com**