Department of Health Assessment

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Brain Health Assessment Programme

體格健康檢查部
Department of Health Assessment

www.hksh.com

Two Main Focuses of Brain Health Screening in Recent Research

Stroke Risks

Scientific evidence shows up to 80% of strokes are preventable. Screening of brain health is recommended in people who are conscious of their cerebrovascular health and have risk factors of stroke such as hypertension, diabetes, dyslipidaemia, obesity, smoking and a family history of stroke.

Cognitive Impairment Risks

Risk factors for cognitive impairment include old age, cardiovascular diseases and metabolic disorders (such as diabetes, high blood pressure, high cholesterol, and obesity), certain genetic mutations (including those linked with Alzheimer's disease), depression, etc.

With mild cognitive impairment, changes often go unnoticed by patients or their loved ones. Screening for cognitive impairment allows early recognition, timely lifestyle modification and interventions.

Brain Health Assessment Programme is designed based on the American Heart Association Guideline on Primary Stroke Prevention[1] and Journal of the American Medical Association advice on screening for stroke and cognitive impairment risks in older adults[2].

Brain Health Assessment Programme	
Medical History	
Comprehensive Physical Examination by Neurologist	
Hong Kong Version of the Montreal Cognitive Assessment (HK-MoCA) by Neurologist	
Laboratory Investigation	
Complete Blood Count	
*Blood Grouping and Rh Typing	
Kidney Function: Creatinine	
Electrolytes: Calcium Phosphorus, Inorganic	
Liver Function: Bilirubin, Total and Direct AST ALT Alkaline Phosphatase Gamma GT	
Proteins: Total, Albumin, Globulin	
Thyroid Function: TSH	
Lipid Profile: Cholesterol-Total, HDL and LDL Triglycerides	
Diabetic Screening: Fasting Glucose	
Gout Screening: Uric Acid	
Cognitive screening: Vitamin B12, Serum Folate	
Time Required: 1.5 hours	**Package Price: HK$5,660**

*Only for first-time participants of the specified Assessment Schemes
*Effective from 1 August 2024

References:
1. https://pubmed.ncbi.nlm.nih.gov/25355838/
2. https://jamanetwork.com/journals/jama/fullarticle/2761646

Participants of Health Assessment Scheme A (original price: HK$14,050) can upgrade to receive brain health screening with assessment and examination conducted by Neurologist.

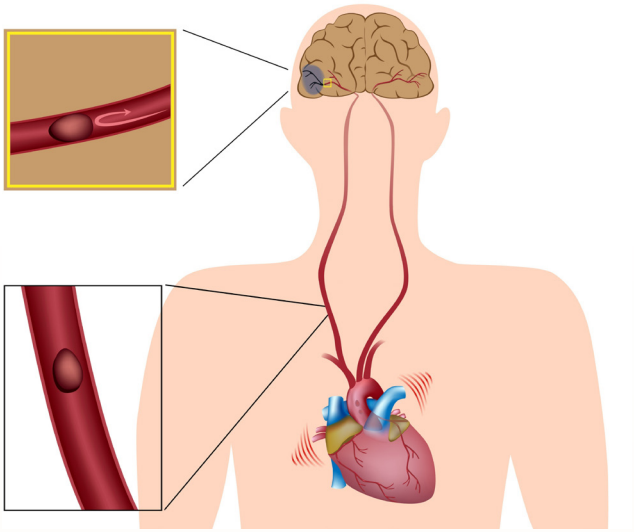
Health Assessment Scheme A + Brain Health Assessment	
Brain Health Assessment Program Items	
Comprehensive Physical Examination by Neurologist	✔
Hong Kong Version of the Montreal Cognitive Assessment (HK-MoCA) by Neurologist	✔
Cognitive screening by Blood test: Vitamin B12	✔
Serum Folate	✔
Time Required: 5.5 hours	**Package Price: HK$16,610**

*Only for first-time participants of the specified Assessment Schemes
*Above items and fee only applicable in conjunction with health assessment program A
*Effective from 1 August 2024

#Participants of any Health Assessment Plan can enjoy a special offer (HK$2,500) to upgrade from Chest X-Ray to Low Dose CT Thorax

After the initial brain health screening, patients with identified stroke or dementia risks may be recommended for further investigations to develop personalised management and control plan for risk factors.

Cardiac Screening of Ischaemic Stroke



Up to 15-30% of ischaemic strokes are caused by atrial fibrillation and cardiac embolism, and are generally associated with higher chance of recurrence, morbidity and mortality than other causes of stroke.

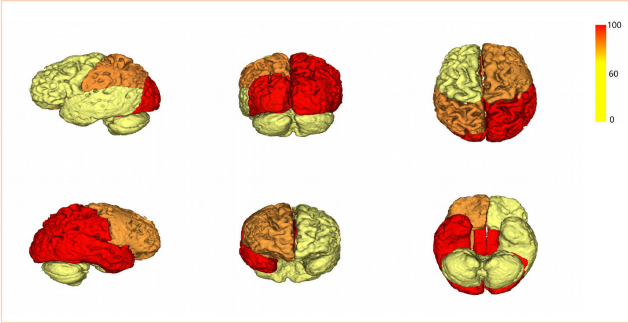
Early identification of specific cause is crucial to choose the most optimal strategy of primary prevention for the different subtypes of cardiogenic ischaemic stroke.

Workup of cardiogenic ischaemic stroke risks may include:

- Electrocardiography
- Holter monitoring
- Echocardiography (TTE / TEE)

References:
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2994109/

Dementia and Detection of Brain Volume Loss



Cerebral atrophy is a long-term effect of neurodegeneration. Alzheimer's disease and other dementias exhibit different degree and patterns of brain volume loss. Detectable changes can be identified in early pre-symptomatic disease stage for risk assessment of cerebral atrophy.

AccuBrain® is a fully automatic neuroimaging analysis system based on the latest image computing technology. The AI imaging analysis system assists neurologists to precisely and accurately analyse the characteristic measurements and patterns of regional brain volume loss. The system can also compare patient's MRI sequenced images with extensive data of healthy and patient control groups, including reference of local population, Alzheimer's disease control groups and other dementias control groups, for a better understanding of the patient's conditions.

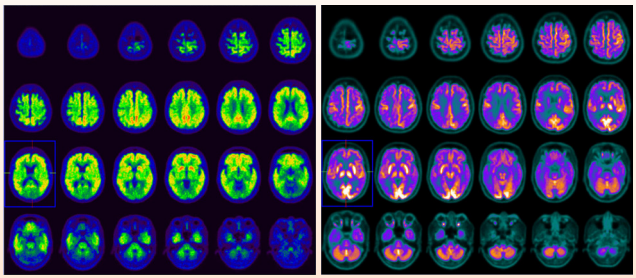
References:
https://www.brainnow.net/about-accubrain
https://jnnp.bmj.com/content/88/11/908

PET/CT and Alzheimer's Disease

Positron Emission Tomography (PET) scan is valuable to show and quantify the cellular activities and the distribution of functional molecules in the brain. PET/CT imaging examinations available in HKSH utilise multiple tracers to aid the diagnosis of Alzheimer's disease and the other causes of dementia:

- ^{11}C-Amyloid and ^{18}F-Tau PET/CT scans measure abnormal accumulation of amyloid and tau proteins in the brain serve as diagnostic indicators for Alzheimer's disease
- ^{18}F-FDG PET/CT scan measures glucose metabolism in the brain which is useful for differentiating Alzheimer's disease from other causes of dementia

Early Alzheimer's disease can be detected by PET/CT scan before onset of signs and symptoms. Neurologists can guide patients on measures to reduce the impact of future cognitive decline.



References:
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4332800/