【校級神經醫學研究中心 109 年 7 月份月會】

會議紀錄

時　　間：109年7月29日(星期三) 12:10-13:30

地　　點：以視訊會議進行，只有講者、主持人及工作人員在現場協助(醫綜大樓後棟6樓601會議室)

主　　席：蔣永孝 主任 (由王家儀執行長代理)

主 持 人：胡朝榮 副院長

TMU Neuroscience Research Center Monthly Meeting Minutes

Chair: Director Y. C. Chiang (represented by Professor J. Y. Wang)

Host: Vice Superintendent C. J. Hu

Recorded by: Professor J. Y. Wang, Secretary C. N. Huang

Time: 2020/7/29 (Wednesday) 12:10-13:30

Place: Net meeting via Google Meet, only speakers and NRC staffs at 601 Conference room at 6th Floor, United Medical Building (Back Building), Taipei Medical University (250, Wu-Xing St)

Meeting Agenda (議程) :

1. Opening by Director Chiang
   1) Encouraging each team to write the "Pre-proposal" (deadline late September) to apply for the MOST Integrated Project Grant
   2) Changing format for next monthly meeting
2. Team progress report hosted and presented by the research team of "Vascular Dementia"
   1) " The Effects of Histone Deacetylase Inhibitor in Vascular Cognitive Impairment" presented by Dr. Eugene Yao Ching Fang 方耀慶博士
   2) " VCI Clinical Study" presented by Dr. Li Kai Huang 黃立楷醫師

1. Opening

On behalf of Director Chiang (who was still busy at the Dream-Way Special Clinic), Dr. Wang announced the beginning of this monthly meeting.

1) Encouraging each team to write the "Pre-proposal" (deadline late September) to apply for the MOST Integrated Project Grant

Prof. Wang first congratulated the Retinopathy Team for the approval of a Program Project Grant (PPG) by MOST this year. Every year we would like to encourage each team to apply for the PPG by writing the "Pre-proposal" (deadline late September). As far as we know there will be 8 teams writing 9 pre-proposals for the PPG this year (see the following table).

因為主席蔣主任今日有君蔚門診，因此由王家儀執行長代理。王家儀執行長先恭喜視網膜團隊獲得今年度的科技部整合型計畫，也鼓勵各團隊今年九月份能多多申請整合型計畫，而目前已知本中心今年預計有八個團隊會申請九件整合型計畫(如下表)。

表一：109 學年度預計申請整合型計畫清單

Team 團隊名稱	Host 總主持人	Project 計畫名稱
Vascular Dementia 血管性失智	Chaur Jong Hu 胡朝榮	Glucose Metabolism in Neuro-degenerative Diseases
Sleep Medicine 睡眠	Jiunn Horng Kang 康峻宏	The role of neuroinflammation in the linkage between fibromyalgia and air pollution: from basic science to clinical study
Sleep Medicine 睡眠	Min Huey Chung 鍾明惠	Translational Study for Exploring the Neurophysiological Mechanism of Light Exposure on Affecting Depression 光照調控憂鬱情緒之神經生理機制轉譯研究
Child Development 婦幼神經心智	Yi Hua Chen 陳怡樺	運用生態系統模式建立幼童注意力缺失之風險預測模型
The Ph.D. Program for Neural Regenerative Medicine 神經再生學程	Yi Chao Lee 李宜釗	Examination of the functional roles of Znf179 in brain injury and neurodegeneration Znf179 在神經損傷與退化之角色探討
Brain and consciousness 大腦與意識	Timothy Lane	Measuring Consciousness
Platelet neurotrophins for neurorestorative biotherapy 血小板生醫工程療法	Thierry Burnouf	to be confirmed
Retinopathy 視網膜病變	Ching Li Tseng 曾靖孋	to be confirmed
TBI 腦創傷	Yung Hsiao Chiang 蔣永孝	to be confirmed

2) Changing format for next monthly meeting

The purpose of the monthly meeting is to promote collaboration and spark off ideas between different people. In the past, each team already presented what they have done. Therefore, we will change the meeting format to the “Forum” in which people can talk about what they want to do in future research (not what has been done) next month. The next monthly meeting will be held on Aug 19 and the topic is “MRI”. Dr. Niall Duncan will be the first host and he will talk about MRI research and interesting techniques. For this time, Dr. Duncan will not use PPT in the forum so that everybody can focus on the discussion and talk freely about what you’re doing, what you want to do, or the research other people might want to work with you.

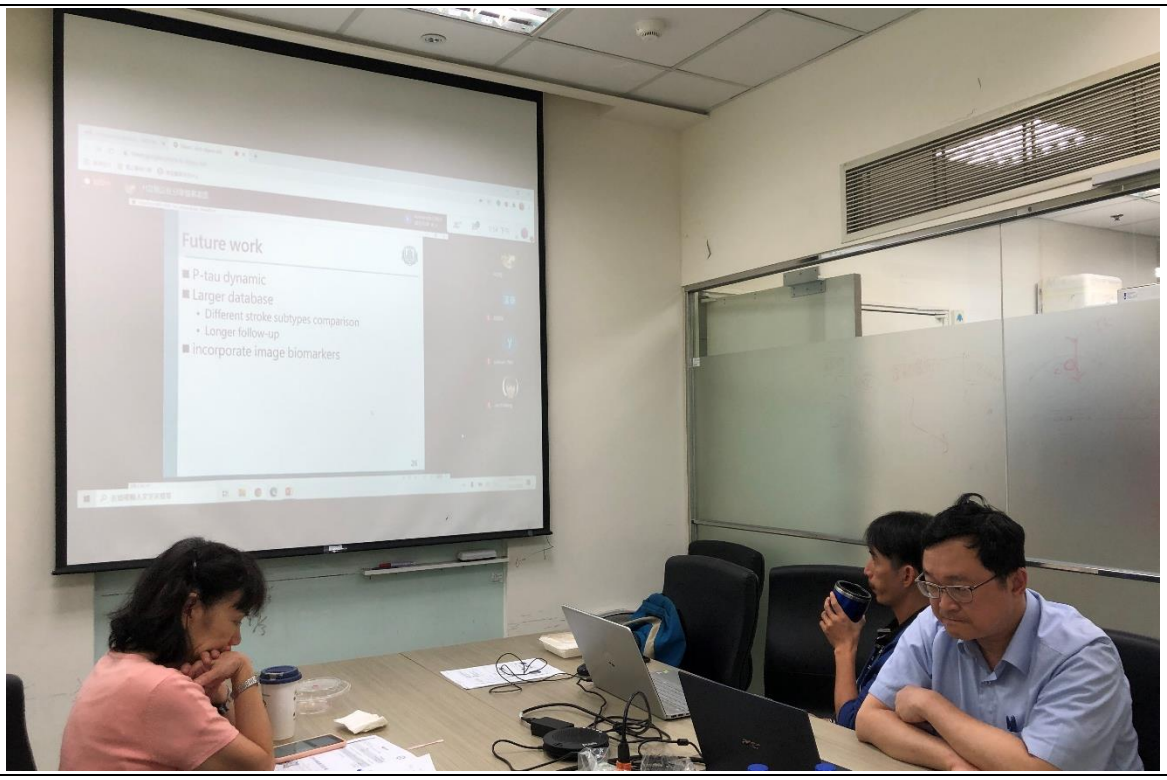
月會的目的是讓大家能共同合作並激發出新的想法，在過往的月會中每一團隊均已分享過各自研究成果，為了讓大家能討論未來要做的研究，本中心下次的月會將會改為論壇形式。下個月的月會將於 8 月 19 日舉辦，主題是”MRI”，由 Niall Duncan 助理教授擔任主持人並討論 MRI 研究及有趣的技術，本次討論將不會使用投影片，藉此希望大家能專注在討論上，談談目前正在進行及未來要做的研究，或覺得可能會吸引別人合作的研究等。

2. Team progress report hosted and presented by the research team of “Vascular Dementia”

1) " The Effects of Histone Deacetylase Inhibitor in Vascular Cognitive Impairment” presented by Dr. Eugene Yao Ching Fang 方耀慶博士

This monthly meeting, we invited the Vascular Dementia Team which is led by Vice Superintendent C. J. Hu. Vice Superintendent Hu introduced the first speaker, Dr. Fang was the Master student of Prof. Wang and he also finished his Ph.D. in the National Defense Medical Center. Dr. Fang specialize in stroke and micro RNA. Today he is going to introduce the effects of histone deacetylase inhibitor in vascular cognitive impairment.

本中心七月份月會由血管性失智團隊進行報告，由團隊召集人胡朝榮副院長介紹第一位講者-方耀慶博士，方博士是王家儀教授的碩士班學生，並於國防醫學院取得博士學位。方博士的專長為中風跟 mRNA。今天他將介紹有關 histone deacetylase inhibitor 在血管性認知功能障礙中的功用。

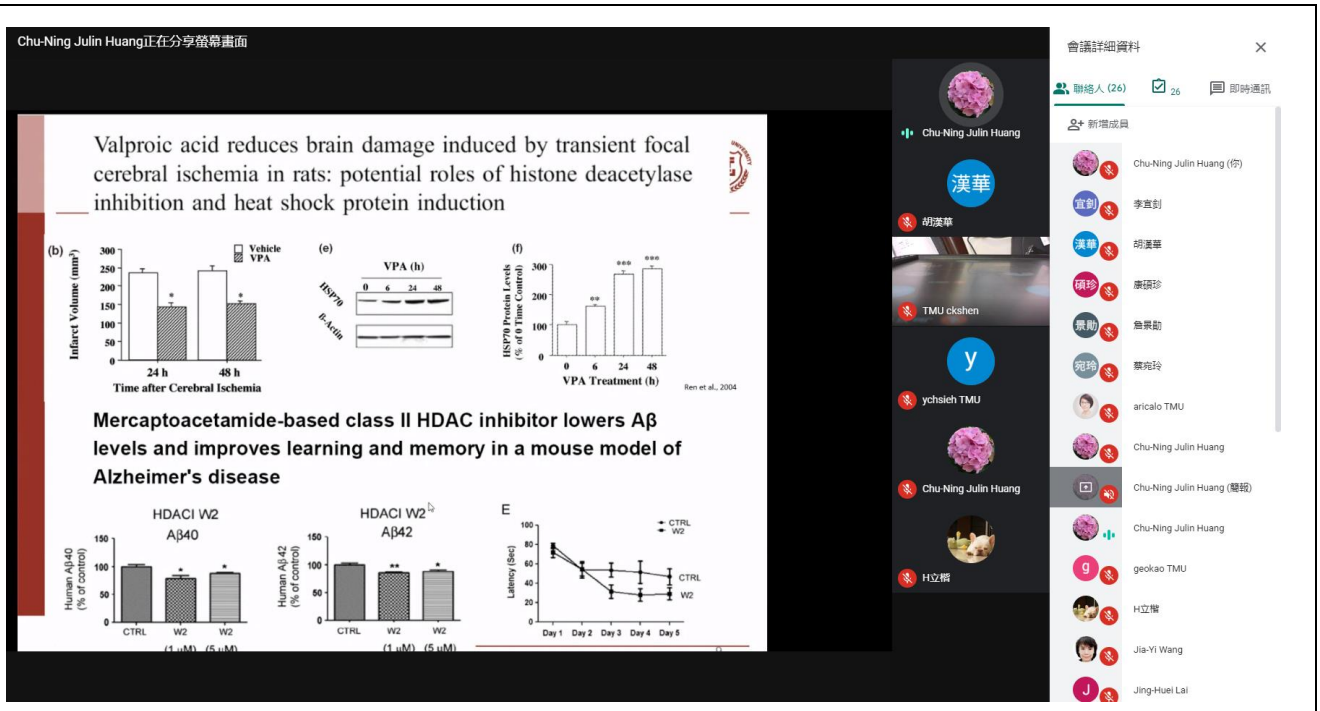


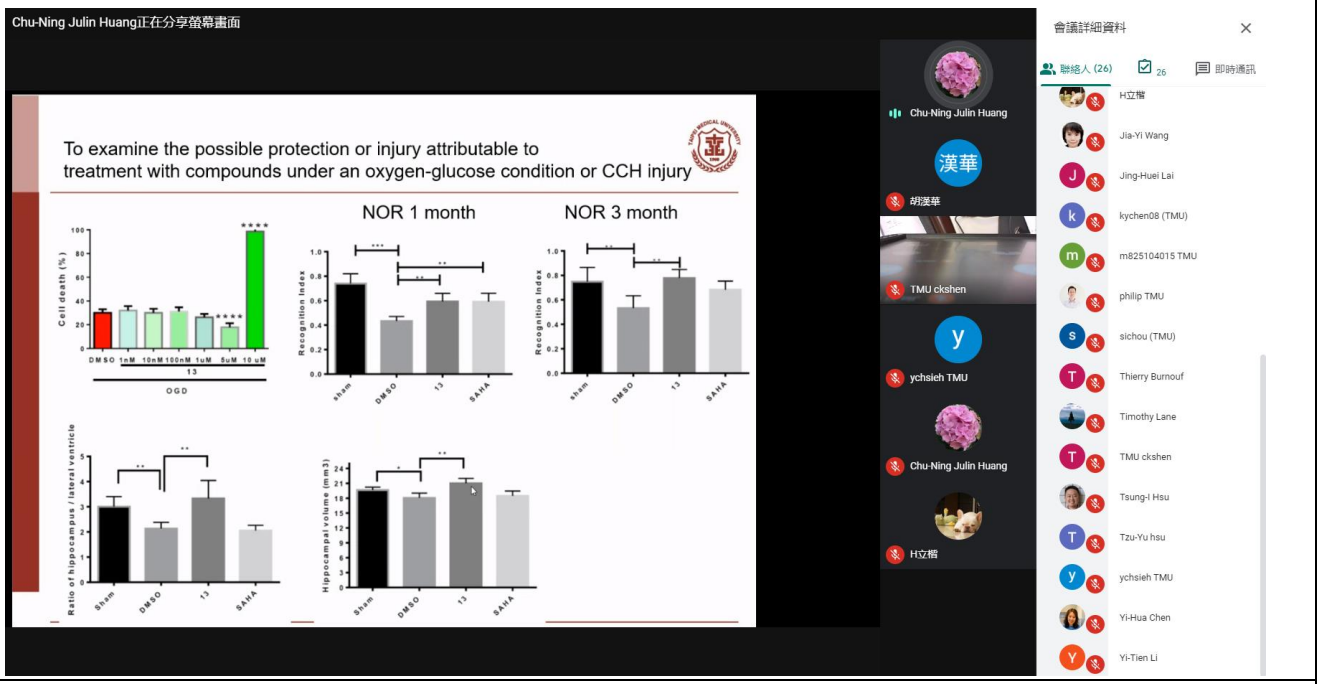
Vascular Dementia Team progress report hosted by Vice Superintendent C. J. Hu (7/29)

Brief summary of Dr. Fang’s speech:

Vascular dementia (VaD) is the second most common cause of dementia, but the treatment is still lacking. Although many studies have reported that histone deacetylase inhibitors (HDACis) confer protective effects against ischemic and hypoxic injuries, their role in VaD is still uncertain. Previous studies shown, one HDACi protected against cognitive decline in animals with chronic cerebral hypoperfusion (CCH). However, the underlying mechanisms remain elusive. In this study, we tested several 10,11-dihydro-5H-dibenzo[b,f]azepine hydroxamates, which act as HDACis in the CCH model (in vivo), and SH-SY5Y (neuroblastoma cells) with oxygen-glucose deprivation (OGD, in vitro). We identified a compound 13,

which exhibited the best cell viability under OGD. The compound 13 could increase, in part, the protein levels of brain-derived neurotrophic factor (BDNF). It increased acetylation status on lysine 14 residue of histone 3 (H3K14) and lysine 5 of histone 4 (H4K5). We further clarified which promoters (I, II, III, IV or IX) could be affected by histone acetylation altered by compound 13. The results of chromatin immunoprecipitation and Q-PCR analysis indicate that an increase in H3K14 acetylation leads to an increase in the expression of BDNF promoter II, while an increase in H4K5 acetylation results in an increase in the activity of BDNF promoter II and III. Afterwards, these cause an increase in the expression of BDNF exon II, III and coding exon IX. In summary, the HDACi compound 13 may increase BDNF specific isoforms expression to rescue the ischemic and hypoxic injuries through changes of acetylation on histones.





The Effects of Histone Deacetylase Inhibitor in Vascular Cognitive Impairment presented by Dr. Y. C. Fang (7/29)

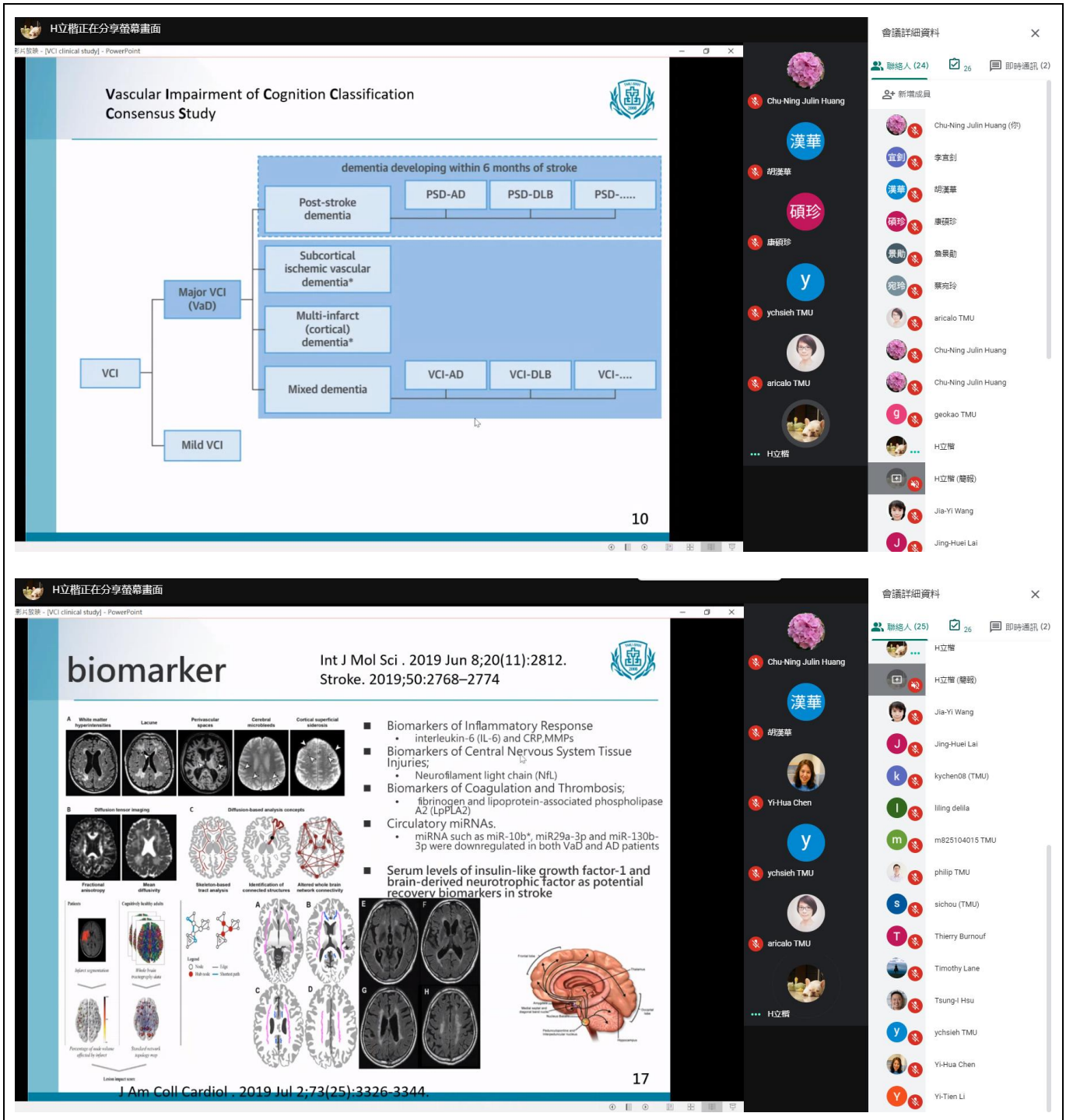
2) " VCI Clinical Study " presented by Dr. Li Kai Huang 黃立楷醫師

The second speaker is Dr. Huang. He is a doctor in the Department of Neurology and Dementia Center of Shuang-Ho Hospital. Dr. Huang is the expert of dementia mechanism. Today he is going to introduce the VCI Clinical Study.

第二位講者為黃立楷醫師，黃醫師任職於雙和醫院的神經內科及失智中心，為失智症機制的專家。今天他將介紹血管性認知功能障礙的臨床研究。

Brief summary of Dr. Huang's speech:

Post-stroke cognitive impairment (PSCI) is responsible for a substantial number of vascular cognitive impairment and dementia (VCID), a cognitive impairment caused primarily by cerebrovascular disease. Various risk factors of PSCI had been proposed including age, gender, educational attainment, cardiovascular risk factors in particular diabetes mellitus and hypertension; brain pathological findings on neuroimage including white matter changes (WMC), grey matter (GM) and hippocampal volumes; stroke severity and a history of previous stroke. The relative importance of factors differs between early-onset and delayed-onset PSCI, although risk factors are similar. It has been postulated that reversible phosphorylation of tau is an adaptive process associated with neuronal plasticity in hibernating animals. We hypothesized that the levels of these plasma biomarkers have a role to the prediction of PSCI. Participants were enrolled between 2015 and 2018. Adult patients (≥20 years old) who were admitted to Shuang Ho Hospital, Taipei Medical University due to acute ischemic stroke within a week were screened for eligibility of enrollment. Stroke severity was assessed using the National Institute of Health Stroke Scale (NIHSS) at admission. The stroke etiological subtype was classified according on the TOAST classification by an experienced neurologist blinded to the patients' outcome. Two neuropsychologist blinded to the patients' plasma biomarker data conducted cognitive function assessments, including Taiwanese version Montreal Cognitive Assessment (MoCA) screening instrument and Clinical Dementia Rating (CDR) global score, Sum of Boxes (CDR-SB; range: 0–18). The blood samples were centrifuged at 1,500 × g for 15 min and stored at −80◦C. MagQu Co. Ltd. (New Protein Analysis Taipei City, Taiwan) performed Immunomagnetic reduction (IMR) assays for plasma Aβ42, total tau and p-tau 181 without patients' identity and clinical information. All of the 173 patients included in this study completed clinical and neuropsychological exams as well as plasma Aβ42, total tau and p-tau 181 IMR assays, brain MRI within 7 days of acute ischemic stroke. Attrition was attributed to refusal of followed-up in 37 Cases at 3 months. Our result showed higher plasma p-tau181 level on acute post-stroke stage is related to a lower risk of PSCI at 3 months (OR=0.56, 95%CI=0.36-0.89, p-value=0.0135) and PSCI at 12 months with a borderline significance (95%CI=0.47-1.01, p-value=0.0538). Further analysis adding p-tau181 to a model containing conventional risk factors (age, education, hypertension, diabetes mellitus, and NIHSS ≤7 days) significantly improved predictive power for PSCI at 3 and 12 months, indicating the additional value in clinical use incorporating other documented risk factors.



VCI Clinical Study presented by Dr. L. K Huang (7/29)

會議結束時間為 13:30。