treating doctors. Outcome data was collected in ED or Cardiology centre, Sarawak. The criteria for successful reperfusion include resolution of ST elevation of at least 50%, resolution of symptoms, and improvement of clinical pictures.

RESULTS

45 patients were enrolled in this study. Our patients were predominantly male (93.3%), Bumiputera in origin (64.4%) with a mean age of 59 years old. 62.3% were smokers and 64.6% has at least 1 premorbid condition. 22 patients were given tenecteplase, with 6 failed reperfusion. 23 patients received streptokinase, with 5 patients failed thrombolysis. 62.2% of the lesion arise from the left coronary artery. Rate of mild bleeding is similar between both group. There is no major bleeding in this cohort.

DISCUSSION

From our data, there's no different in success rate or bleeding rate between tenecteplase and streptokinase regardless of demographic or type of coronary lesion. Larger prospective RCT study is needed to confirm our findings.

PP 88

BRAIN PACEMAKER AND MEMORY ENHANCEMENT: INVESTIGATION OF NEURAL AND MOLECULAR MECHANISMS IN THE AGED BRAIN

Lee Wei Lim[1], Li Ka Shing[2]
[1]Department of Biological Sciences, Sunway University, Malaysia
[2]Faculty of Medicine, the University of Hong Kong, Hong Kong

INTRODUCTION

Age-related memory dysfunction is the main symptom of dementia-related disorders. Current treatments for dementia are limited, and no therapies are known to halt the development of this neurodegenerative disease. In this study, we tested the hypothesis that electrical stimulation of the medial prefrontal cortex (mPFC) enhanced learning and memory-related behaviors in an aged animal model.

MATERIALS AND METHODS

Aged rats were stimulated in the mPFC and they were behaviorally tested for hippocampaldependent memory and anxiety-related tests to evaluate possible side-effects. The molecular mechanisms in the hippocampus along with other brain regions were investigated using a combination of in vivo electrophysiological recording, immunohistological and biochemical approaches including DNA microarray-based genome-wide analyses with real-time quantitative
PCR and western-blotting techniques.

RESULTS

Our data demonstrated that electrical stimulation targeting specifically the mPFC evoking powerful memory enhancement effects in aged animal model. Our results showed a remarkable increase of neural progenitors, surviving BrdU-positive cells, and dendritic arborization after chronic stimulation as compared to the control. Principle component analyses revealed differentially expressed genes in both the dorsal and ventral hippocampi. Pathway analysis showed a distinct pattern of biological signaling mechanisms after stimulation in particular the monoamine and synaptic neurotransmission, neuroplasticity-related functions, regulation of cyclic adenosine monophosphate metabolic and biosynthetic processes. In addition,

the electrophysiological and histochemical data have also demonstrated that mPFC stimulation evoked a specific brain circuitry modulation of the serotonergic networks, which linked to the dorsal raphe nucleus in regulation of the mood and hippocampal-dependent memory behaviors.

DISCUSSION

Our findings suggested that electrical stimulation of the mPFC has the potential to be developed into a therapy to treat patients suffering from dementia. Importantly, the mechanisms by which stimulation improves memory functions are likely to be mediated by a complex hippocampal signaling pathways that underlie the process for memory acquisition, consolidation and retrieval.

PP 89

ELECTRICAL STIMULATION RESCUES DOPAMINERGIC DEGENERATION IN THE DORSAL RAPHE NUCLEUS AND ENHANCED HIPPOCAMPAL NEUROGENESIS OF VULNERABLE DEPRESSIVE-LIKE RATS

Sharafuddin Khairuddin[1], Wei Ling Lim[2], Yasin Temel[3], Lee Wei Lim[1,2,3]

[1]School of Biomedical Sciences, Li Ka Shing Faculty of Medicine, the University of Hong Kong, Hong Kong

[2]Department of Biological Sciences, Sunway University, Selangor, Malaysia

[3]Departments of Neuroscience and Neurosurgery, Maastricht University, the Netherlands

INTRODUCTION

Electrical stimulation has been proposed as a potential therapy for patients with treatment resistant depression. In this study, we investigate the effects of high-frequency stimulation (HFS) in different brain regions on various depressive-like behaviors using the stress resilience and vulnerable rat depression models.

MATERIALS AND METHODS

Rats were exposed to chronic unpredictable stress procedures (CUS) for 3 weeks. Vulnerable and resilience animals were characterized based on their sucrose consumption levels during CUS procedures. CUS-treated rats received HFS in the lateral habenula (LHb), ventromedial prefrontal cortex (vmPFC), nucleus accumbens (NAc) and they were tested for depressive-like behavioral experiments. The morphological changes of dopaminergic neuron and hippocampal neuroplasticity were determined by immunohistochemical labeling methods.

RESULTS

CUS exposure for 3 weeks increased number of animals (51%) exhibiting reduced sucrose consumption, separating the resilience and vulnerable group of CUS-induced model. CUS vulnerable sham animals demonstrated anxiety-like behavior, decreased motivation and increased immobility compared to that of the resilience group, implicating high susceptibility of vulnerable individuals to the CUS procedure. Interestingly, vmPFC HFS significantly reduced anxiety response, increased hedonia and motivation levels for food intake in the vulnerable group compared to the resilience group, while HFS in other brain regions did not show difference. HFS in vmPFC and LHb also showed reduced behavioral despair in both CUS vulnerable and resilience group. In histochemistry, our results demonstrate that vmPFC HFS rescued the stress-induced dopamine neuron