

**Authors:** Sisu Seong<sup>1</sup>, Hyewon Kim<sup>2</sup>, Min-Ji Kim<sup>3</sup>, Hong Jin Jeon<sup>4,5,\*</sup>, Gyu Ha Ryu<sup>5\*</sup>

<sup>1</sup> Department of Medical Device Management and Research, SAIHST, Sungkyunkwan University, Seoul 06351, Korea

<sup>2</sup> Department of Psychiatry, Hanyang University Hospital, Seoul, South Korea.

<sup>3</sup> Biomedical Statistics Center, Research Institute for Future Medicine, Samsung Medical Center, Seoul, South Korea

<sup>4</sup> Department of Psychiatry, Depression Center, Samsung Medical Center, Sungkyunkwan University School of Medicine, Seoul, South Korea

<sup>5</sup> Department of Health Sciences & Technology, Department of Medical Device Management & Research, and Department of Clinical Research Design & Evaluation, Samsung Advanced Institute for Health Sciences & Technology (SAIHST), Sungkyunkwan University, Seoul, South Korea

<sup>5</sup> Department of Medical Device Management and Research, SAIHST, Sungkyunkwan University, Seoul 06351, Korea

\* Corresponding authors: Gyu Ha Ryu, Ph.D., Hong Jin Jeon, M.D., Ph.D.† Equal contributors

**Objective:** Although various clinical indicators of suicide have been recorded, the previous suicide attempt is meaningful as one of the most robust risk factors predicting subsequent suicide attempts but there are lacking in biomarkers for evaluating suicide attempts. This study aimed to analyze the correlation of changes in oxygenated hemoglobin concentration with lifetime suicide attempt during verbal fluency test.

**Method:** A total of 60 patients with major depressive disorder (MDD) were enrolled. Demographic, clinical, physical, and psychological evaluations were conducted. We evaluated the suicidal behaviors through MINI suicidality item. We indicated verbal fluency test to examine prefrontal activation during the cognitive execution while fNIRS was observed.

**Results:** 54 of enrolled patient with MDD (23 those with a lifetime history of suicide attempt; 31 those without a lifetime history of suicide attempt) are eligible for the subject. The patients were 35.19% of those with a lifetime history of suicide attempt. The values of the changes in oxygenated hemoglobin involving the entire regions of prefrontal cortex were smaller in those with a lifetime history of suicide attempt. The biggest difference is in right VMPFC, the mean score of those with a lifetime history of suicide attempt and those without a lifetime history of suicide attempt were 0.095(SD, 1.032) and 0.610(SD, 1.038) although the statistically non-significance. We discovered that a small value of changes in oxygenated hemoglobin was related to lifetime suicide attempt through multivariable logistic regression analysis. After adjusting for age, sex, years of education, and HAMD, there was a significant difference in the right VMPFC [OR = 0.491(95% CI=0.235~0.916), p = 0.036].

**Conclusions:** Study result indicated that the values of the changes in oxygenated hemoglobin were smaller in who attempted suicide before during cognitive execution. The adjusted regression analysis was presented significant result in right VMPFC. Therefore, the changes in oxygenated hemoglobin measured by fNIRS can be applied as a biomarker for suicidal behavior such as lifetime suicide attempt.

## **P187: A patient with early-onset Alzheimer's disease presenting with a unique form of Capgras syndrome**

**Authors:** Takeda Kayo<sup>1) 3) 5)</sup>, Suzuki Maki<sup>2)</sup>, Hikida Sakura<sup>1)</sup>, Yuto Satake<sup>1)</sup>, Kazumi Hirayama<sup>4)</sup>, Etsuro Mori<sup>2) 3)</sup>, Manabu Ikeda<sup>1) 3)</sup>