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## **Efficacy of Virtual Reality contents for cannulation anxiety of hemodialysis patients**

**JIWON RYU**<sup>1</sup>, Jae-Jin Song<sup>2</sup>, Wonjae Lee<sup>3</sup>, Sanghoon Jheon<sup>4</sup>, Sejoong Kim<sup>5</sup>

<sup>1</sup>Department of Internal Medicine, Seoul National University Bundang Hospital, Korea, Republic of

<sup>2</sup>Department of Otorhinolaryngology, Seoul National University Bundang Hospital, Korea, Republic of

<sup>3</sup>Department of Internal Medicine-Cardiology, Seoul National University Bundang Hospital, Korea, Republic of

<sup>4</sup>Department of Thoracic and Cardiovascular Surgery, Seoul National University Bundang Hospital, Korea, Republic of

<sup>5</sup>Department of Internal Medicine-Nephrology, Seoul National University Bundang Hospital, Korea, Republic of

**Objectives:** The pain and anxiety of patients during cannulation of hemodialysis could degrade their quality of life. We tried to evaluate whether the use of VR, emerging new technology, during hemodialysis cannulation can reduce patient's anxiety.

### **Methods:**

This study was conducted on patients taken maintenance hemodialysis. In the first week, 5 minutes before cannulation, the vital signs and the State-Trait Anxiety Inventory scale (STAI) was measured. Then, VR was watched for a total 10 minutes during the cannulation and the vital signs and STAI were re-measured, and Korean Edmonton symptom Assessment System (K-ESAS) and Simulator Sickness questionnaire (SSQ) were evaluated. Next week, conventional action (smartphone, watching TV, etc.) was performed before cannulation, and the patient's vital signs, STAI, ESAS, and SSQ were repeatedly measured.

**Results:** Total 23 hemodialysis patient were enrolled in this study. In the VR group, the change of vital signs showed that heart rate decreased by 3.17 ( $\pm$  5.12) beats/min ( $P=0.007$ ), and systolic blood pressure (SBP) decreased by 6.17 ( $\pm$  13.0) mmHg ( $P=0.033$ ), significantly. In conventional group, only SBP decreased by 7.26 ( $\pm$  15.3) mmHg ( $P=0.033$ ). The STAI scale did not show no difference in both group. In K-ESAS, the VR group felt pain, drowsiness, dyspnea and depression less than the convention group, while tiredness, nausea, anxiety, and insomnia appealed more. The total score of K-ESAS was 20.26 ( $\pm$  9.87) points to 21.21 ( $\pm$  13.87) points, and there was no significant difference.

**Conclusions:** The VR had the effect of inducing stability of vital signs, however, had little effect of reducing actual anxiety during cannulation in hemodialysis patients.