Analysis for factors of brain death donor processing for face and hand transplantation in Korea: how much time will be available from brain death to transplantation?

Jong Won Hong¹, Soon Won Chung¹, Sung Jae Ahn¹, Won Jai Lee², Dae Hyun Lew¹, Yong Oock Kim¹

¹Department of Plastic and Reconstructive Surgery, Yonsei University College of Medicine, Seoul, Korea

²Institute for Human Tissue Restoration, Yonsei University College of Medicine, Seoul, Korea

Background: Face and hand transplantation has naturally evolved from reconstruction and transplantation. However, few institutes or nations perform face transplantation. Difficulties in performing face transplantation limit approvals by the institution for such transplantations to take place. One issue is that the procedure is time consuming. The other is whether the non-vital organ face transplantation is suitable for the organ transplantation process. Therefore, we analyzed the process of previously donated organ from brain-dead patients and suggest its utility in such cases.

Methods: A retrospective data review was performed on 1,074 brain-dead patients from January 2015 to December 2016 in Korea. We analyzed brain death time from admission to transplantation donation, the cause of brain death, and the state of the transplanted organs. We also analyzed the time from admission to final brain death.

Results: Patients (n=1,074) were composed of 747 males and 327 females. The average period between admission to first brain death decision was 8.5 days (± 15.3). The average time intervals between the first brain death decision to electroencephalography and between the first brain death decision and brain death were 16 hours 58 minutes (± 14 hours 50 minutes) and 22 hours 57 minutes (± 16 hours 16 minutes), respectively. The most common cause of brain death was from cerebral hemorrhage and stroke (42.3%) followed by hypoxia (30.1%) and head trauma (25.2%).

Conclusions: When face transplantation is performed in Korea, the transplantation team has an average of 22 hours 57 minutes to prepare after the first brain death decision. Although head trauma is not the same as facial trauma, the cause of approximately one-fourth of brain death is from head trauma; therefore, surgeons should be aware that the facial tissue may be compromised in such cases.

Corresponding author: Jong Won Hong

E-mail: hsatur@hanmail.net

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