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Applications of Space Medicine to Earth-Related Health Issues (3)

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THE STUDY FOR THE RELATIONSHIP BETWEEN THE DIURNAL VARIATION OF INTRAOCULAR PRESSURE AND SPACEFLIGHT

Abstract

Introduction: It has been well known that chronic elevations in intraocular pressure (IOP) are associated with the development of visual impairments, which could lead to a damage of optic nerve fibers with subsequent visual field defects. In fact, the increases in IOP have been observed in microgravity and simulated microgravity. However, we still don't know the diurnal variation of IOP during spaceflight. Therefore, this study was designed to evaluate the effect of spaceflight on diurnal variation of IOP. Method: Intraocular pressures with the Pressure phoshene tonometer(PPT) were measured on 1 subject (Korean 1st astronaut) during spaceflight. For diurnal variation in microgravity, IOPs measured every 3 hours during day time(x6/day) each day, 2 separate days in ISS: 3 IOP measurements at each time on both eyes. A total 72 measures were obtained under microgravity. To get the control IOP data, IOP measured on same method on ground before space flight. Results: The result showed that the mean IOP increased by 26.3Conclusion: The conclusion of this study was that there was no specific diurnal variation of IOP during spaceflight compared to baseline data on ground. One of significant results is that mean IOP increased in L+4 day lasted until L+8 day.