English Session

[EngO1]English Session1

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Fri. Mar 1, 2019 9:00 AM - 10:00 AM 第11会場 (国立京都国際会館1F Room C-2)

[EngO1-1]External pressure to the calf region in contact with the boot-support-type leg holder system in the lithotomy position

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【 ライブ配信】

Background: Pain, redness, or swelling at the posterior aspect of the lower leg, and well leg compartment syndrome are complications related to long surgical procedures performed using a leg holder (LH) system in the lithotomy position. We have reported that the external pressure to the calf region in contact with the knee-crutch-type LH system to support the distal part of the posterior thigh, popliteal fossa, and calf regions increases in male gender and with the increases in height, weight, and body mass index (BMI) [J Mizuno 2016]. In the present study, we investigated the relationship between the external pressure to the calf region in contact with the boot-support-type LH (BSLH) system to support the calf, ankle, heel, and plantar regions and selected physical characteristics.

Methods: This study was approved by the ethics committee of Okayama Prefectural University (approval number 453) and was registered at UMIN-CTR (UMIN000030416). 31 young healthy volunteers, 15 males and 16 females, participated in this study. The contact pressure (CP) and peak contact pressure (PCP) were measured as representative external pressures to the calf region in contact with the BSLH system Bel Flex ® (*L* 356 mm ×*W* 200 mm; Takara Belmont Corp., Osaka, Japan) in the lithotomy position by pressure-distribution measurement system BIG-MAT ® (Nitta Corp., Osaka, Japan) which comprises a pressure-distribution measurement sheet with 10 mm pitch with 2,112 (44×48) sensors BIG-MAT2000P3BS®, a sensor connector, and a personal computer with built-in BIG-MAT® software. Relationships between CP or PCP to the calf region and a series of physical characteristics were analyzed.

Results: CPs to the left and right calf regions were 12.1±1.5 and 12.2±1.5 mmHg, respectively, and PCPs to the left and right calf regions were 23.6±6.8 and 24.3±6.3 mmHg, respectively. There were no gender differences in CPs and PCPs. Significant positive correlations were not observed between the bilateral CPs and height, weight, BMI, tibiare height (TH), bimalleolar breadth (BB), maximum calf girth (MCG), or foot length (FL), and between the left PCPs and height, weight, BMI, TH, BB, MCG, or FL, and between the right PCPs and height, weight, BMI, BB, MCG, or FL.

Conclusion: External pressure to the calf region in contact with the BSLH system in the lithotomy position is independent of gender, body size, lower leg size, and foot size. Using the BSLH system in the lithotomy position is safer and securer regardless of gender, body size, lower leg size, and foot size.