



Evaluation of the pressure characteristics of the new Kanmed Warmcloud body warming device in healthy volunteers.

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Introduction

This study aims to evaluate the pressure characteristics of a new patient body warming device(Kanmed Warmcloud, Kanmed AB, Sweden), consisting of a warm air flow generator connected to an inflatable, disposable air mattress that is positioned underneath the patient. Besides adequate temperature management, this device possibly reduces the risk of pressure sores in the perioperative setting.

Materials and Methods

Twenty healthy subjects (11 male, 9 female; aged 20- 55; BMI 19,3-38) volunteered to participate in this protocol after institutional ethics committee approval and signed informed consent.

By means of a pressure sensor mattress device(FSA, Vista Medical Europe BV, The Netherlands), we recorded pressures generated in the lower back and pelvic area, comparing the standard operating table mattress(WM) with the warming device superimposed on the operating table mattress(R1,R2,Z1,Z2).

Pressures were recorded with the patient in standardised supine(R1, R2) and right lateral decubitus(Z1, Z2) and with increasing pressure settings(20, 25,30, 35, 40, 45, 50, 55 and 60 mm Hg) of the device. Since temperature management was not the issue of the investigation, the temperature setting of the device was kept on 36° C. All pressure recordings were repeated for reproducibility purposes(hence R1,R2, Z1, Z2).

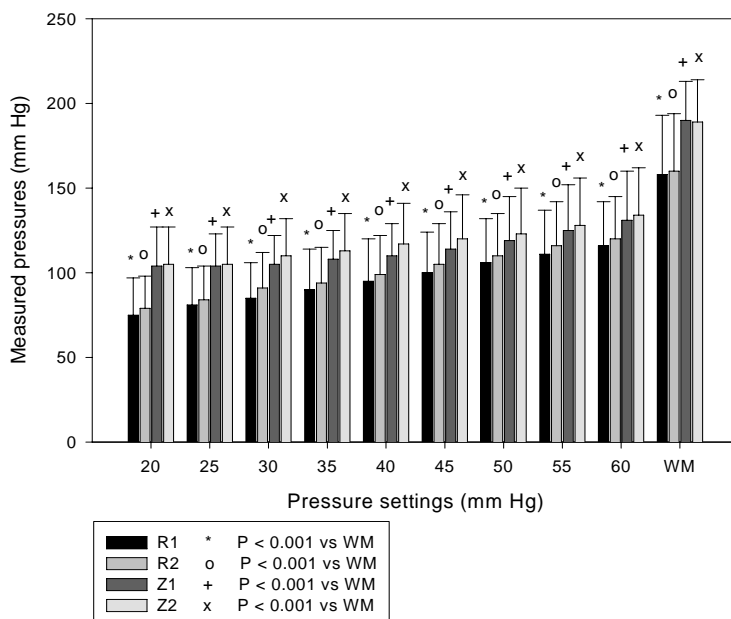
Pressure recordings were made using a standard portable computer with FSA recording software.

Statistical analysis of the results was performed with Sigmastat 2000(SPSS inc. USA).

Results

The obtained maximum and average pressure measurements are as shown in figure 1 below. Average pressure measurements showed equal statistical significant differences.

Fig 1: Maximum Pressures



Conclusions

At all preset pressures and in all conditions, pressure measurements with the Kanmed Warmcloud device were significantly lower than those obtained with the standard operating mattress alone. This characteristic can possibly prevent pressure sores in surgical procedures with protracted immobilisation of patients.