



Service Priorities and Programmes
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Utility of the additional use of heel protectors with alternating pressure mattress.

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Introduction

Because of the undulating function of alternating pressure mattress (APM), it is often prescribed to provide pressure relief for patients who need special skin care. Heels are often the focus of attention because they, with the calcaneum being bony, are prone to pressure injury. However, there are controversies to whether the sole use of APM is sufficient or additional provision of heel protectors is necessary to ensure adequate protection of the heels from pressure injury.

Objectives

Upon the use APM, to compare the pressure relieving effect on heels with and without the use of heel protectors.

Methodology

The study involved the measurement of the heel pressure of a subject laying supine with straight leg on an APM with and without wearing heel protectors. The subject was a male of 68kg with no previous history of foot injury. 13 common types of heel protectors were used. The APM used was EasyAir-400 of 189cmx89cmx10cm with a 12-minute cycle of inflation and deflation. Kikuhime was the portable sub-bandage pressure sensor used for taking the pressure measurements.

The maximum and minimum heel pressures of both the inflation and deflation phases of the APM were recorded for a 12-minute undulation cycle. The measurements were taken with and without the application of heel protectors, and individually with each of the 13 different types of heel protectors.

Result

Without wearing heel protectors, the bare foot heel pressure with the APM in inflation and deflation was 134mmHg and 31mmHg respectively. The APM inflation and deflation heel pressure ranged from 0-77mmHg and 0-35mmHg respectively upon the application of the 13 different types of heel protectors individually. In other words, relative to the sole use of APM, additional application heel protectors could offer more pressure relieving effect.

The findings and experience of this study indicated that direct pressure measurement was essential before applying a specific type of heel protector in order to ascertain if

additional pressure relief could be offered. Further, specific conditions of individual patient, comfort, cost, durability, leg mobility, conformity of and patient's compliance to wearing heel protectors should all be considered in deciding whether or not heel protectors should be applied upon the use of APM.