



Service Priorities and Programmes Electronic Presentations

Convention ID: 136

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Evaluate and Standardize the Application of Ice Gel Packs in Physiotherapy Service

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Keywords:

Gel pack

Cryotherapy

Standardization

Physiotherapy

Introduction

Cryo-therapy is one of the commonest physiotherapy (PT) modalities employed for pain and edema control during acute phase of injury through reducing the intramuscular temperatures of affected area.

With the emerge of different cooling agents in the market characterized by their ease of preparation and re-usability, orthopaedic team of our department had introduced the use of ice gel packs (GPs) as an alternative cooling agents to the conventional crushed ice pack in recent years. However, having various application methods (i.e GPs stored in freezer set at different temperature, GP wrapped in plastic bag, placing it directly over skin or over clothing etc.) adopted among different therapists, its therapeutic effect becomes questionable.

Objectives

1. To evaluate the effectiveness of different GP's application methods
2. To standardize GP application method in orthopaedic team, PT, TPH

Methodology

Gel packs (Model: SOFT R&R Cold/Hot Pack 31x17cm, Taiwan Stanch Co. Ltd., Taiwan) were placed in freezer with two different temperature settings (0oC and -5oC) for at least 1 hour before each test. During the test, a handheld infrared thermometer (HIT) was used to measure tester's skin surface temperature. Four different GP application methods were tested:

1. Placed directly on skin;
2. Placed on a clothing layer covering skin;
- 3 & 4. Wrapped in a plastic bag and repeat 1 &2.

Tester's skin surface (GP application site) temperature was recorded before, at 3 minutes intervals for 15 minutes, and after application using HIT.

Result

All application methods of GPs prepared in 0oC freezer could not bring skin surface

temperature lower than 16°C in order to provoke local analgesic effect as suggested by literature (Belitsky, 1987; Kanlayanaphotporn, 2005; Kennet, 2007).

GPs prepared in -5°C freezer, with or without plastic bag wrapping, and placed directly on skin, could bring skin surface temperature into therapeutic range (below 16°C).

Results showed that GPs with or without plastic bag wrapping placed directly on patient's skin provide similar effectiveness. GPs with plastic bag wrapping is recommended as direct application of GPs over patients' skin may bring up infection control concerns.

With regard to the effectiveness, feasibility and safety issues of different application methods, applying GPs prepared by freezer set at -5°C with plastic bag wrapping directly on patient's skin would be recommended as a standardized practice in our team.