

Carol Stamas, RN, BS, CLLM
Published: February 2012
Lit. No. AC12206

HEAT REFLECTIVE TECHNOLOGY AS A TREATMENT: Innovative Emergency Department Therapy

Abstract

Addressing the dangers posed by hypothermia is a critical function for the staff of a hospital Emergency Department (ED). Between 1995 and 2004 in the United States an average of 1560 cold-related emergency department visits occurred per year, and in the years 1999 to 2004 an average of 647 people died per year due to hypothermia.^{[1][2]}

Studies demonstrate that heat reflective products, such as Thermoflect, are effective at maintaining normothermia as well as preventing hypothermia. In addition, Thermoflect products are compact and easily stored in both EDs and Emergency Medical Services [EMS] vehicles where space is very limited.

This case study illustrates how heat reflective technology was successfully used as a therapeutic intervention that effectively rewarmed the patient when more traditional and aggressive therapies were unsuccessful.

Introduction

Thermoflect heat reflective technology captures the body's radiant heat, and "banks" it to safely and effectively warm. It is constructed from soft ultra lightweight nonwoven materials that easily conforms body surfaces. Thermoflect requires no electricity, water or other consumables and requires no maintenance or cleaning.

A large acute care hospital in the Chicagoland area began using Thermoflect heat reflective technology as a patient warming method in mid 2011. For more than 20 years, the product had been used primarily to prevent hypothermia in the surgical patient. Heightened staff awareness of the effectiveness of this technology in other departments in the hospital prompted the ED staff to consider using it in this case.

Case Presentation

In late 2011, an elderly patient was admitted to the ED with a rectal temperature of 28.33°C/83°F. Hypothermia is defined as a core temperature below 36°C/96.8°F.

The patient had been exposed to extremely cold temperatures for an extended period of time. Several care protocols including the use of warming blankets, IV Therapy, forced air warming and warmed humidified air were initially attempted to establish normothermia.

When the use of these protocols proved unsuccessful in raising the patient's temperature, the ED staff added a Thermoflect blanket below the patient while continuing the forced air warming on top, creating a sandwich effect. Thermoflect booties and a cap were added as well. Once the patient's temperature began rising, the patient was transferred to ICU and remained there overnight until a temperature of 99.4 was achieved the next day. The patient went home in good condition.

The long-standing effects from the patient's hypothermia-like condition were avoided through the innovative application of the Thermoflect heat reflective products and the quick thinking of the ED clinicians.

Discussion

As previously stated, Thermoflect heat reflective technology has been primarily used in the perioperative environment to maintain normothermia and prevent hypothermia. In this instance, Thermoflect proved to be an effective treatment in the ED environment as well.

This situation illustrates the need to continuously search for patient warming solutions that will help achieve the best possible patient outcomes in an efficient way.

Conclusion

Many studies have demonstrated the efficacy of heat reflective technology in the perioperative environment. This case provides a clear example of how heat reflective technology worked as an effective rewarming therapy in the ED environment as well.

The ED staff's instinctive decision to look beyond routine rewarming methods and try Thermoflect as a warming solution was critical in helping the patient to achieve a positive outcome.

¹a b Baumgartner, *Hypothermia and Other Cold-Related Morbidity Emergency Department Visits: United States, 1995–2004 Wilderness and Environmental Medicine*, 19, 233 237 (2008)

² Centers for Disease Control and Prevention (CDC) (March 2006). "Hypothermia-related deaths—United States, 1999–2002 and 2005". *MMWR Morb. Mortal. Wkly. Rep.* 55 (10): 282–4. PMID 16543884.

Carol Stamas, RN, BS, CLLM
Director of Clinical Resources, Encompass Group, LLC