



ORIGINAL ARTICLE

Severe burns related to steam inhalation therapy^{☆,☆☆}



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KEYWORDS

Burn;
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Abstract

Introduction: Despite lack of proven effectiveness and its potential to cause severe burns, steam inhalation therapy (SIT) is still used as a treatment for benign respiratory conditions.

Objective: To characterise cases of burns related to steam inhalation therapy (BRSIT) in order to formulate appropriate preventive criteria.

Patients and methods: A review was conducted on cases of BRSIT admitted to a Burns Unit between 2006 and 2012, analysing epidemiological data, clinical aspects, severity and course.

Results: A total of 530 patients were admitted; 375 (70%) with scalds, and 15 with BRSIT (2.8% of burns; 4% of scalds). SIT was indicated in most cases for mild upper airway infections. The median age of patients was 7 years (2.5 m-14 y). The burned area (BA) was $\geq 10\%$ in 60% of cases (max. BA 22%). Injuries involved trunk, genital area, and extremities; only in one case was the face affected. The mean hospital length-of-stay was 14 days (3-30d). Five patients (33%) were admitted to the PICU, most of them (60%) younger than 3 years. Eight patients (53%) underwent surgical treatment (skin grafting). In a 12-year-old patient whooping cough was diagnosed in the Burns Unit, and a 2.5-year-old patient developed staphylococcal toxic shock syndrome. No patient died. The final course was satisfactory in all patients.

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PALABRAS CLAVE

Quemadura;
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Conclusions: BRSIT can be severe and cause significant use of health resources. Professionals caring for children, particularly paediatricians, should seriously consider their prevention, avoiding treatments with SIT, and educating parents in order not to use it on their own.
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Quemaduras graves relacionadas con la terapia inhalatoria con vahos**Resumen**

Introducción: Todavía se emplean vahos con agua caliente como tratamiento de procesos respiratorios banales, a pesar del riesgo de ocasionar quemaduras y de no haberse demostrado su efectividad.

Objetivos: Caracterizar los casos de quemaduras relacionadas con vahos (QRV) en una población de niños quemados con el objeto de formular criterios para su prevención.

Pacientes y métodos: Revisión de pacientes ingresados por QRV en una unidad de quemados durante el periodo 2006-2012. Se analizó: epidemiología, clínica, gravedad y evolución.

Resultados: Ingresaron 530 pacientes quemados; 375 (70%) con escaldaduras y 15 con QRV (2,8% del total; 4% de las escaldaduras). Los vahos fueron indicados mayoritariamente para tratar episodios catarrales banales. La edad mediana fue 7 años (2,5 meses-14 años). La superficie corporal quemada (SCQ) fue $\geq 10\%$ en el 60% de los casos (SCQ máxima 22%). Las quemaduras afectaron al tronco, a los genitales y a las extremidades y solo en un caso afectó a la cara. La estancia media hospitalaria fue de 14 días (3-30 d). Cinco niños (33%) ingresaron en la UCIP, la mayoría (60%) menores de 3 años. Ocho casos (53%) requirieron intervención quirúrgica (injerto de piel). Un paciente de 12 años fue diagnosticado de tos ferina y otro de 2,5 años presentó un shock tóxico estafilocócico. No hubo fallecimientos. Todos los pacientes evolucionaron satisfactoriamente.

Conclusiones: Las QRV pueden ser graves y consumir importantes recursos. Los profesionales de la atención al niño, particularmente los pediatras, deben velar por su prevención, absteniéndose de indicar los vahos como tratamiento y educando a los padres para que no los utilicen por sí mismos.

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Introduction

Scalds are the most frequent cause of burns in childhood, especially between the ages of 1 and 3 years, when children become more independent but are little aware of the dangers around them. Scalds usually occur in the home in the process of meal and infusion preparation.¹ As happens with other types of burns², warnings are important for their potential prevention, and may even have legal repercussions. This is the case of several states in the USA, where warnings about tap water scalds have led to various laws establishing a maximum temperature of 49 °C for hot tap water (1983 Washington State Law).³

On the other hand, steam inhalation therapy (SIT), which has been used traditionally and is still employed today to treat mild respiratory tract infections despite the lack of evidence to support its effectiveness, can also cause burns indirectly through scalding.

The aim of this study was to describe the patients admitted to our hospital with hot water burns related to steam inhalation therapy, determining the incidence and severity of such injuries, paying special attention to factors

that may be useful in establishing criteria to prevent such burns.

Patients and methods

We performed a retrospective descriptive study by reviewing the cases of patients admitted to the burns unit of the Hospital Universitario Vall d'Hebron of Barcelona (UQVH; the burns referral unit for the region of Catalonia and the Balearic Islands) from January 1, 2006 to December 31, 2012. The population under study consisted of paediatric patients (age <16 years) admitted to the UQVH with burns related to steam inhalation therapy (BRSIT). We analysed factors relating to the causative mechanism, the signs and symptoms, the severity of the injuries and the outcome of patients. The burns considered severe, based on depth and extent, were partial-thickness burns (second degree) covering 10% or more of the total body surface area (or $\geq 15\%$ in children aged 10 years or older) and full-thickness burns (third degree) covering 5% or more of the total body surface area (all ages).⁴ The study was approved by the ethics and

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