Car Seat Heaters: A Potential Hazard for Burns

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Car seat heaters have gained popularity in America and worldwide. They offer comfort by heating the sitting surface to a soothing temperature. Several cases of heating-element malfunction resulted in burn injuries and have triggered recalls of thousands of cars by the manufacturers. We present a case of a 48-year-old patient with long-standing paraplegia who sustained third-degree burns on his buttock during the initial drive of a new car with seat heaters. Car seat heaters can cause severe burns. Patients with decreased sensation or immobility are at increased risk and should not use car seat heaters. This case illustrates the need for design modifications and consumer education regarding the risks associated with car seat heaters. (J Burn Care Rehabil 2003;24:315–316)

Car seat heaters have gained worldwide popularity with booming sales in the US market. This new climate-control seating technology offers comfort, warmth, and has been part of add-on packages used by American car manufacturers to promote sales. As a result of consumer demand, more cars are being equipped with seat heaters.[1] Although heated car seats provide many benefits, this new technology is not risk free. Several reports of burns and even combustion of the car seats caused by the heaters have triggered recalls of thousands of cars.[2,3] We present a case of a patient who suffered third-degree burns to his buttocks as the result of contact with a faulty car seat heater. The potential dangers of car seat heaters need to be publicized and car seat heater safety measures taken to prevent future accidents.

CASE REPORT

A 48-year-old male with long-standing paraplegia and decreased buttock sensation presented to the burn clinic complaining of severe burns to his buttocks from a car seat heater. He reported driving a new minivan with car seat heaters for 20 minutes before noticing pain on his buttocks. On exam, the patient had third-degree burns on his right buttock measuring approximately 5 cm × 5 cm (Figure 1). The burns were on the most dependent portion of this patient's body, in an area of constant pressure from his paraplegia.

The car seat (Figure 2) had four panels that produced heat. Testing of these panels revealed that they had a temperature of 95°F, whereas the heating panel near his burns reached a temperature of 120°F.

After discussing the options, the patient underwent nonoperative treatment with local debridement and wound care, which resulted in complete closure of the wounds after 4 months. After healing of the wounds, the patient experienced residual hyperesthesia, burn scar hypertrophy, and occasional pain to this area.

DISCUSSION

Car seat technology has added numerous complex features to modern cars, including seat heaters, seat coolers, electric, and computerized controls to adjust seat position and preferences for the height and distance from the steering column of the driver seat. A recent addition, the seat heater, has gained wide popularity. Worldwide sales of car heaters are booming. In America manufacturers use this nonstandard device to promote their sales, resulting in the wide distribution of seat heaters.[1]

Seat heaters, however, are not free of trouble. According to the American International Automobile Dealers Association 65,000 Volvo cars had to be recalled from the American market because "excessive compression" could cause seat heaters to catch fire. Volvo reported 50 incidents and three injury claims.[2] The National Highway Traffic Safety Administration reported overheating of front seat heaters in Chrysler cars.[3] The malfunction reportedly could cause the car seats to catch fire because of "hot spots" on the heater element.

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Figure 1. Picture of the patient's right buttock with third-degree burn injury measuring approximately 5 cm × 5 cm.

Figure 2. Picture of the car seat with arrows pointing at the location of the heating coils that caused this patient's burn injury at 120°F.

Two years later, the same kind of vehicle caused third-degree burns on our patients' buttock. This is the result of the car seat heater malfunctioning and the patient's inability to sense the excess heat in time. Several problems were identified in this case (Table 1). The car seat's temperature was tested and found to reach 120°F. At this temperature, third-degree burns can occur within 10 minutes.[4] Car seat heaters should never reach these temperatures. Because there is no warning light on the dashboard to signal when the heaters are on, patients with impaired sensation may not be aware that the car seat heater is on. In addition, the heating elements should have a control device to turn them off when they overheat. The seat heaters could be improved if they offered a temperature control instead of just an on/off button that sets to maximal heat every time. Most importantly, the seat heaters on every car should be tested to prevent accidents with heaters that come defective from the factory.

Table 1. Problems and suggested solutions in current case

Current Problem	Suggested Solution
Seat heater temperature 120°F	Temperature controlled below 105°F
No sensor to stop overheating	Fuse to sense and stop malfunctioning
Patient unaware that seat heater is on	Visible alert on dashboard
New car with malfunctioning seat heater	Seat heater function testing in factory
Heater temperature always set to maximum	Adjustable temperature settings
Patient with impaired sensation or mobility	Patient should not use car seat heaters
Patient unaware of car seat heater risks	Consumer education and warnings

The patient in our case had a spinal cord injury. His diminished sensation on his lower body placed him at high risk for seat heater burn injuries. Other patients with diminished sensation or ability to react include patients with diabetes, vascular disease, stroke, mental or physical disabilities, and also small children. Any person with altered sensation or immobility should never sit on a heated seat.

Car seat heater burns are a problem that may increase with the increasing popularity of this new add-on. The design of the seat heaters presents the potential for severe burn injuries. Consumer education regarding the risks of seat heaters and design modifications to increase their safety, especially for high-risk patients, are needed.

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