Car Seat Heater Burns: A Case Report Intended to Raise Awareness

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Background

- Approximately 30-40% of the cars in U.S have seat warmers, with the demand increasing.
- No established protocol or safety testing required for seat heater manufacturing.
- Severe car seat heater burns first described in 2003.[1]
  - Found temperatures of 49°C result in partial thickness burns.
- Prolonged exposure at lower temperatures can result in burns.[2]
  - 44°C for 7 hours.
  - Time to burn is cut in half every 1°C increase.
- Despite documentation of burns, minimal changes have been instituted.
- National Highway Traffic Safety Administration issued voluntary guidelines to car manufacturers (Maximum temperature set to 42°C, Automatic shut-off timer).[3]

Case

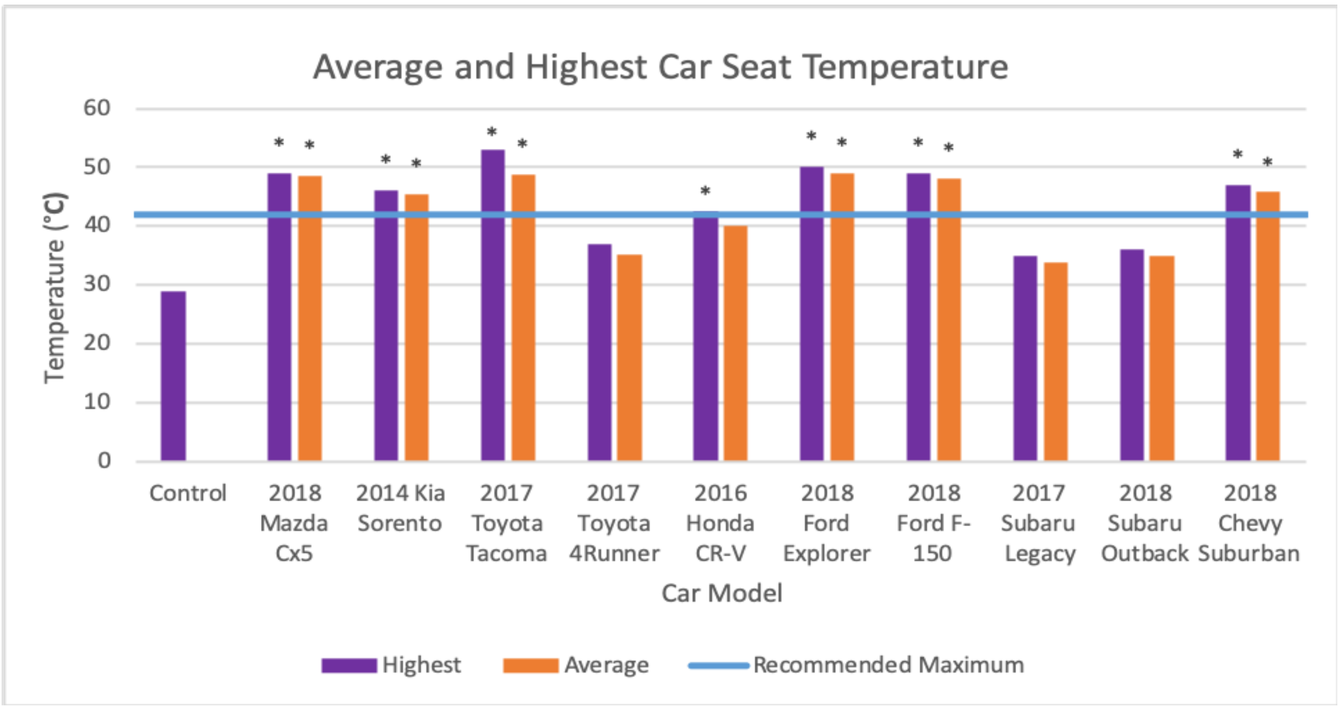
- 18-year-old paraplegic patient suffered bilateral posterior thigh full-thickness burns secondary to a faulty car seat heater.
- Patient treated surgically with right debridement and left closure with posterior thigh fascio-cutaneous flap.
- First case of car seat heater burn treated surgically.

Left Ischial wound (2.5cm x 3.4cm)

Methods

- 10 cars, models 2014 or newer, with an independently calibrated contact surface temperature thermometer.
- Testing performed at 21°C (70°F) ambient air.
- Test was repeated four times, each time on a different heater coil.
- Average and highest temperatures for each test were recorded.

Results



Average temperatures range from 34°C to 49°C. Highest temperature range from 35°C to 53°C.

Conclusion

- Modern car seats still reach temperatures that far exceed the NHTSA voluntary standards.
- Prolonged exposure, even at low temperatures, can result in partial and full thickness burns.
- Burns can be severe enough to require operative intervention (full thickness burns).

Discussion

- Mandatory standard should be considered to include:
  - Seat heaters not exceeding 43°C
  - Automatic shut off timers
  - Clearly visible light indicating seat heater is on
- Provider has responsibility to educate and warn patients of the dangers of prolonged car seat heater use.
- Under no circumstances should patients with sensory deficits (diabetics, spinal cord injuries, vascular disease, children, elderly) use car seat heaters.

References

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