FOOD ALLERGY NEWS AND RESEARCH

Researchers Review Effects of Heat, Cold on Epinephrine

KIDS WITH FOOD ALLERGIES ○ 5/26/16 @ 12:34 PM ✱

What health issue did the study examine?

The study analyzed previous studies looking at the effects of temperature changes on epinephrine. Epinephrine is the only treatment for anaphylaxis, or severe allergic reactions.

What do we know about this issue so far?

Epinephrine is a colorless liquid. It is temperature sensitive. Auto-injector labeling instructs storage at 77 degrees Fahrenheit (or 25 degrees Celsius). Trips are allowed between 59 to

86 degrees F. Families and patients may find those instructions difficult. The researchers noted that storage in emergency vehicles may also be a challenge.

What question did researchers try to answer?

Researchers wanted to know what is understood so far about the effects of extreme temperatures on epinephrine.

What methods did the researchers use?

Researchers looked for studies that already discussed this subject. They found nine studies. The studies included auto-injectors, as well as the types of liquid vials used by emergency personnel.

What did the researchers find?

Heat weakened epinephrine, but only with prolonged exposure. Constant heat resulted in a larger change. None of the studies that evaluated epinephrine exposure to extreme cold found significant weakening. None of the studies looking at real-world temperature changes detected significant weakening. Real-life temperature changes as a result of trips may be less harmful than previously suggested. Only two small studies involved auto-injectors. The researchers said all 40 devices tested fired correctly.

What does this study mean for me?

More research is needed, especially to understand how extreme heat and cold affects epinephrine auto-injectors. However, if your epinephrine auto-injector was exposed to extreme temperatures and is the only device readily available in an emergency, you should still use it. It will not be harmful, but be aware it may not be as effective. As always, if you have anaphylaxis, use your epinephrine and call 911.

Ask your allergist if you have any questions about how to use or care for your epinephrine auto-injector.

Reference:

Parish, H.G., Bowser, C.S., Morton, J.R., Brown, J.C. (2016). A systematic review of epinephrine degradation with exposure to excessive heat or cold. *Annals of Allergy, Asthma & Immunology.*

Medical Review May 2016.

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 KATIE D 5/27/16 @ 8:49 AM

Nice summary, something I know many of us are concerned about especially as we approach the summer.

I'm curious what "prolonged exposure" means ~ Does it mean constant heat for hours at one time or hours over multiple times? I assume it means hours, but could it mean days or some other measure of time...?

 KATHY P 5/26/16 @ 5:26 PM

That's a great suggestion! Also looking at how temperature affects the mechanism.

 HARRYWDOG 5/26/16 @ 4:47 PM

Thank you for this research.

I'd like to suggest a similar study on how time affects this drug. Specifically, how far past the expiration date is still okay?

STEPHC ○ 5/26/16 @ 3:50 PM

Nice summary.