Published in final edited form as:

J Pediatr. 2014 January ; 164(1): 220–221. doi:10.1016/j.jpeds.2013.09.035.

Reply

Danilyn M. Angeles, PhD,

Department of Basic Science, School of Medicine, Loma Linda University, Loma Linda, California

Danilo S. Boskovic, PhD, and

Department of Basic Science, School of Medicine, Loma Linda University, Loma Linda, California

Douglas Deming, MD

Department of Pediatrics, School of Medicine, Loma Linda University, Loma Linda, California

To the Editor

We agree with the statement by Keshvani that untreated procedural pain can increase oxidative stress, as published by our laboratory¹ and others.² However, we want to address the comment on the subgroup analysis, which included neonates whose pain score increased minimally (<33% increase in Premature Infant Pain Profile score) in response to a single heel lance. This subgroup of neonates included control subjects who received no heel lance (n = 19) and 2 groups of neonates who received a single heel lance, 2 minutes after receiving either placebo and non-nutritive sucking (n = 19) or sucrose (Sweet-Ease; Children's Medical Ventures, Phillips Healthcare, Andover, Massachusetts) and non-nutritive sucking (n = 27). The mean pain scores in response to the heel lance were low and not significantly different (placebo 4.3 ± 0.9 vs sucrose 4.0 ± 1.0), which indicated minimal or no pain response.³ These data suggest that both treatment options (placebo and sucrose) dampened the painful response to tissue damage, which should have resulted in lower oxidative stress markers in both groups. However, as we reported, plasma allantoin concentration increased significantly over time in neonates who received sucrose, but not in those who received placebo.

It is unlikely that neonates in the sucrose group have greater tissue damage because both groups received only a single heel lance. Baseline oxidative stress was not significantly different between the 2 groups, which suggests that the neonates in the sucrose group did not have higher tissue damage-induced oxidative stress compared with the placebo group.

We agree that neonatologists should not change their practice of prescribing sucrose for procedural pain based on a single study. However, these data suggest that sucrose administration is not harmless and may have adverse effects. Therefore, caution is warranted. These data also suggest that lack of a pain response to a procedure (as measured by pain scoring tools) may not necessarily reflect absence of tissue damage or pain. As we concluded, more studies are needed to determine the biochemical effects of sucrose in preterm neonates.

References

1. Slater L, Asmerom Y, Boskovic DS, Bahjri K, Plank MS, Angeles KR, et al. Procedural pain and oxidative stress in premature neonates. *J Pain*. 2012; 13:590–7. [PubMed: 22543043]
2. Buonocore G, Belliene C. Neonatal pain and oxidative stress. *Minerva Pediatr*. 2010; 62(3 Suppl 1): 59–60. [PubMed: 21089720]
3. Stevens B, Johnston C, Petryshen P, Taddio A. Premature infant pain profile: development and initial validation. *Clin J Pain*. 1996; 12:13–22. [PubMed: 8722730]