Limb Ischemic Preconditioning for Open Heart Surgery in Infants

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We read the inspiring article by Zhou and colleagues in the January 2010 issue of *Pediatric Cardiology* [1]. We consider this study to be a fundamental basis for future research because it shows that remote limb ischemic preconditioning is a simple, noninvasive technique that also can be used for infants. But we are concerned about the safety of the cuff pressures used during remote ischemic preconditioning.

In the current study, the authors inflated the pressure cuff to 240 mmHg for infants. In previous similar adult study protocols, cuffs have been inflated to 200 or 40 mmHg above the patients' actual upper arm blood pressure [2, 3]. Tourniquet pressures may cause complications such as soft tissue blisters, burns, rashes, abrasions, nerve-related injuries, and muscle injuries [4]. Lieberman et al. [5] recommended that a cuff pressure of 50 mmHg above systolic blood pressure is sufficient to provide limb ischemia in pediatric patients. We believe future studies should use lower cuff pressures to minimize pressure-related tissue damage in infants.

Reply

We appreciate the comments from Oc Bahar and colleagues. How to perform limb ischemic preconditioning is

a key point in our study. We inflated the pressure cuff to 200 mmHg in previous studies. This pressure decision was based our belief that the maximum pressure not leading to pressure-related complications should be used. During the clinical study, we did encounter mild skin injuries lasting for the first days of preconditioning and resolving a few days later. In addition, we found that a pressure of 200 mmHg is sufficient to cause a protective effect for preconditioning. Currently, we use pressure of 200 mmHg for arm ischemic preconditioning and a pressure of 240 mmHg for leg ischemic preconditioning.

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