Isoflurane-induced Neuroapoptosis in the Neonatal Rhesus Macaque Brain: Isoflurane or Ischemia-Reperfusion?

To the Editor:
We read with great interest the article by Brambrink and colleagues.1 We want to raise a major point concerning their methodology and the ensuing interpretation of their results. The authors did not measure blood pressure in either the control group or at baseline in the treated animals. If we speculate that mean arterial pressure (MAP) measured at recovery time in their infant monkeys reflects MAP at baseline, a 35% decrease in MAP occurred during the entire procedure (see table 1 in their article). In infant animals as in infant humans, loss of autoregulation in preserved organs such as the central nervous system may rapidly occur, even when blood pressure moderately decreases. In a previous study, we observed that spinal cord blood flow was markedly decreased by epidural lidocaine in infant rabbits compared with adults and that the decrease in blood flow was correlated with a decrease in MAP.2 Also, another study from our group performed in former premature infants showed that spinal anesthesia was accompanied by a decrease in cerebral blood flow parallel to the decrease in peripheral blood pressure.3 Then, it can not be ruled out that the neurodegeneration observed by the authors was simply related to the decrease in MAP observed during the 5-hour procedure.

Jean Xavier Mazoit, M.D., Ph.D.,* Philippe Roulleau, M.D., Catherine Baujard, M.D. *Hôpital Bicêtre, Le Kremlin-Bicêtre, France. jean-xavier.mazoit@u-psud.fr

References

(accepted for publication July 28, 2010.)