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Let's Have "Sympathy"

To the Editor:—A simplistic question in the recent editorial view[1] regarding sympathectomy could possibly benefit by this simplistic comment which points to the head side of the coin. The editorial view was partially prompted by an accompanying article[2] that suggested that the reactions of the sympathetic nervous system may not be beneficial in anesthetized humans. It appears to me that the sympathetic system is only responding to external manipulation (read: anesthesia) of the body's "*milieu interieur*" with its dynamic and continuous response to forces pulling in opposite directions in its attempt to maintain homeostasis. This dynamic balance is maintained at a price, however, and the question is asked whether adverse "effects" of stress now outweigh the benefits of the intact sympathetic nervous system. At the onset, one needs to argue that these "adverse effects" are usually not the primary cause of difficulties, but a response attempting to maintain "constant" conditions within the body. The sympathetic division of the autonomic nervous system plays a large part in preserving homeostasis during general anesthesia.[3] Minor adjustments are made continuously and the simple act of standing upright brings about a mild sympathetic emergency. Dr. Roizen wonders "why has evolution not eliminated the sympathetic system?" There are many reasons. Perhaps the most important reason is our own existence, because early animals became relatively independent of their external environment only after they, as warm-blooded animals, had evolved a mechanism for preserving the stability of their internal environment. A temporary sympathectomy, as part of the overall anesthetic technique (*i.e.*, regional anesthesia), is one thing, but a total removal of one division of the autonomic nervous system for most of us is not even remotely useful, unless, of course, we are protected from factors such as stress, cold, hemorrhage, hypoxia, hypoglycemia, etc. We need "sympathy."

ZELJKO J. BOSNJAK, PH.D.
Associate Professor of Anesthesiology & Physiology
Research Service 151
VA Medical Center
Milwaukee, Wisconsin 53295

REFERENCES

1. Roizen MF: Should we all have a sympathectomy at birth? Or at least preoperative? ANESTHESIOLOGY 68:482–484, 1988
2. Stone JG, Foex P, Sear JW, Johnson LL, Khambatta HJ, Triner L: Myocardial ischemia in untreated hypertensive patients: Effect of a single small oral dose of beta-adrenergic blocking agent. ANESTHESIOLOGY 68:495–500, 1988
3. Seagard JL, Bosnjak ZJ, Hopp FA, Kotrly KJ, Ebert TJ, Kampine JP: Cardiovascular effects of general anesthesia, Effects of Anesthesia. Baltimore, Waverly Press Inc., 1985, pp 149–178

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In Reply:—One can't but believe one should have "sympathy." Clearly, the sympathetic nervous system evolved to help protect us in the classic "fight or flight" situation. But surgery, much as it involves trauma, is not the same as trying to avoid bullets. At times, when the surgeon is causing trauma, the "fight or flight" reflex may, in fact, harm us. Like any maneuver, there is a risk and a benefit and, yes, there is risk from perioperative sympathectomy, but there is clearly benefit, as the articles by Stone,[1] Flacke,[2] Ghignone,[3] Yeager,[4] Roizen,[5] Bland,[6] Klassen,[7] Norris,[8] and Levine[9] all imply. I'm not convinced that the benefit of the presence of the sympathetic nervous system in the controlled perioperative environment is greater than its risk, as I believe the data are not yet clear. But perhaps we should save the "sympathy" for those who are left with an intact sympathetic nervous system perioperatively.

MICHAEL F. ROIZEN, M.D.
Professor and Chairperson
Anesthesia & Critical Care
Professor of Medicine
The University of Chicago
5841 South Maryland Avenue
Chicago, Illinois 60637

REFERENCES

1. Stone JG, Foex P, Sear JW, Johnson LL, Khambatta HJ, Triner L: Myocardial ischemia in untreated hypertensive patients: Effect of a single small oral dose of a beta-adrenergic blocking agent. ANESTHESIOLOGY 68:495–500, 1988
2. Flacke JW, Bloor BC, Flacke WE, Wong D, Dazza S, Stead SW, Laks H: Reduced narcotic requirement by clonidine with improved hemodynamic and adrenergic stability in patients undergoing coronary bypass surgery. ANESTHESIOLOGY 67:909–917, 1987
3. Ghignone M, Calvillo O, Quintin L: Anesthesia and hypertension: The effect of clonidine on perioperative hemodynamics and isoflurane requirements. ANESTHESIOLOGY 67:901–908, 1987
4. Yeager MP, Glass DD, Neff RK, Brinck-Johnsen T: Epidural anesthesia and analgesia in high-risk surgical patients. ANESTHESIOLOGY 66:729–736, 1987
5. Roizen MF, Lampe GH, Benefiel DJ, Sohn YJ, Lichtor JL, Smith JS, Stoney RJ, Ehrenfeld WK, Goldstone JS, Reilly LM, Thisted RA, Eger EI, Hamilton WK: Is increased operative stress associated with worse outcome? (abstract) ANESTHESIOLOGY 67: A1, 1987
6. Bland JHL, Lowenstein E: Halothane-induced decrease in experimental myocardial ischemia in the non-failing canine heart. ANESTHESIOLOGY 45:287–293, 1976
7. Klassen GA, Bramwell RS, Bromage PR, Zborowska-Sluis DT: Effect of acute sympathectomy by epidural anesthesia on the canine coronary circulation. ANESTHESIOLOGY 52:8–15, 1980
8. Norris RM, Clarke ED, Sammel NL, Smith WM, Williams B: Protective effect of propranolol in threatened myocardial infarction. Lancet 2:907–909, 1978
9. Levine JD, Dardick SJ, Roizen MF, Helms C, Basbaum AI: The contribution of sensory afferents and sympathetic efferents to joint injury in experimental arthritis. J Neurosci 6:3423–3429, 1986

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