ever evolving experimental and clinical research. This is how we understand science targeted at improving patient care.

Competing Interests
The authors declare no competing interests.

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References

Limitations of the Pupillary Reflex: Do the Eyes Have It?

To the Editor:
We read the article by Guglielminotti et al.1 and the accompanying editorial by Larson and Gupta2 with great interest. Guglielminotti et al. used pupillary dilation reflex amplitude in response to a standardized noxious test to predict movement upon surgical stimulation in young (28 ± 6 yr old) women without known diabetes who were receiving general total intravenous anesthesia. In the accompanying editorial, Larson and Gupta stated that “rare syndromes” such as diabetic neuropathy could interfere with the accuracy of this type of testing.

By using commonly accepted hemoglobin A1C as the criterion, it is shown that 9.6% of Americans older than 20 yr and 21.1% of Americans older than 65 yr have diabetes.3 These patients are more likely to have a surgical procedure than non-diabetic patients.4 Furthermore, as many as 50% of patients with diabetes will need a surgical procedure in their lifetime.5 Fulk et al.6 examined non-insulin-dependent patients with diabetes for sympathetic denervation of the iris dilator. They showed that “pupillary neuropathy can develop in persons with diabetes, often before the other complications of diabetes become manifest.” Furthermore, a study of children with diabetes found that abnormal pupillary adaptation is common and progressive over time and may be an indicator of early tissue damage.7 Pittas et al.8 examined pupils of patients with type 1 diabetes and demonstrated that pupillary sympathetic denervation occurs in these patients. Clearly, even those with early-stage diabetes may have abnormal pupillary responses, thus limiting this technology in many of our patients.

Guglielminotti et al.1 included only young women, but we know that the autonomic nervous system changes with advancing age and with those changes come reduced pupillary responses. Bitsios et al.9 found that the amplitude and velocity of the darkness reflex were reduced and the time of recovery of the light reflex was increased (both signs of decreased sympathetic outflow) in the elderly.

Given that a large number of surgical patients will have diabetes and/or advanced age, potential factors associated with pupillary dysfunction, we caution readers that these two comorbidities could limit the applicability of pupillary dilation reflex amplitude to a generalized patient population.

Competing Interests
The authors declare no competing interests.

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References

References

Trials and Observations: A Friendly Pointer on the Language of Study Design

To the Editor:
I appreciate the fine efforts of Silbert et al.1 to improve our knowledge about patients at risk for postoperative cognitive dysfunction. However, the language used to describe their investigation would benefit from additional precision to improve interpretation and uptake of the study by the readership. Following are a few friendly clarifications.

This letter was sent to the author of the referenced article, who declined to reply.