Does Diabetes Reduce Local Anesthetic Requirement?

To the Editor:—Kalichman’s laboratory has pioneered sophisticated neuroanatomic techniques quantitating nerve injury from exposure to local anesthetics. And they show that nerve of streptozotocin-treated rats is injured more severely by lidocaine than by saline.1 The 4% lidocaine solution appears particularly damaging and, perhaps for that reason, is restricted to surface (topical) application in humans and labeled “not for injection.”

My quibble is one of implication. It is not whether streptozotocin produces hyperglycemia (clearly, blood sugar level was increased 2.5 times that of control), but whether hyperglycemia necessarily implies diabetic neuropathy—a segmental denervating or axonal degenerative process of slow onset (in humans).2 The author’s figure 6, for instance, depicts well myelinated, densely packed intact fibers, a “... normal-appearing diabetic rat nerve...” per the legend.

Muscle action potential amplitude appears to have more than doubled by streptozotocin treatment (amplifier sensitivity was reduced from 200 μV to 500 μV in fig. 1). Could reduced recorder sensitivity perhaps explain the apparent enhanced potency of procaine (but not of lidocaine) in hyperglycemic “diabetic” rats?

This still leaves unresolved whether 1% lidocaine or procaine is more neurotoxic in treated than in untreated rats, and whether the outcome was due to increased serum glucose levels or whether the results reflect the subtle neurotoxicity of streptozotocin. One wonders as regards receptions, galas, and “perks.” It is difficult to achieve a balance that satisfies the needs of all our members and at the same time serves the legitimate commercial interests of our colleagues in industry. It is an open market economy, and we are part of it.

The excesses on both sides of the equation—the opulent response of our members to shiny objects and cocktail waiters, and the seductive blandishments of salesmen determined to corrupt the conscience of humankind—should be restrained. Whether this is best achieved by regulation or moral persuasion is an open question.

Let’s try moral persuasion: I call on all those involved to put economy and value before personal benefit. Our patients deserve it.

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References


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