Stellate Ganglion Block: Normal Saline as Placebo

To the Editor:—Haddox and Kettler,1 in their study, showed that normal saline, when injected in the area of the stellate ganglion, could act as a placebo injection before a stellate ganglion block, as would normally be performed in the classic differential spinal for lower extremity pain.

I believe that two points are worthy of discussion here. First, a sham injection in the neck would be just as effective at not eliciting a sympathetic response as actual injections of saline in the area of the stellate ganglion, as advocated by Haddox and Kettler, without the risks associated with needle insertion and injection into this area. More importantly, differential blocks can be easily performed, in more or less the classical way, for the upper extremities by using a differential epidural technique.

Since all of the sympathetic nerve fibers leave the spinal cord below the T-1 level, by placing an epidural catheter into the upper thoracic epidural space, a differential epidural can be performed. By first injecting normal saline a placebo injection can be obtained, followed with injections of low concentrations of local anesthetic to block the sympathetic nerves without blocking sensory fibers. This is especially easy, since the

csensory and sympathetic nerves are anatomically, as well as physiologically, separated to these areas. In my experience, 0.5% lidocaine will give a good sympathetic block in most individuals. It is not necessary to proceed beyond this point in the average pain patient but, of course, it is possible to do so, except for pain in the distribution of the cranial nerves. I might also point out that this is a very easy and effective way of providing sympathetic blockade for the upper extremity and head and neck in patients who have altered head and neck anatomy, e.g., after carotid endarterectomies or radical cancer surgery, or in patients who cannot psychologically accept needle injections into the neck.

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In Reply:—We appreciate the opportunity to respond to Dr. Day’s thoughtful comments.

Our purpose was not to show the technique that we described as superior to a sham injection, but merely to establish the legitimacy of a normal saline stellate ganglion block. The sham injection may or may not be better; however, it might be less than desirable in a medically sophisticated patient. Then, it would be more appropriate to approximate the correct technique as closely as possible. Within the limitations we mentioned, we feel that our study supports this.

Likewise, our purpose was not to assert that stellate ganglion block is a better technique than a differential epidural. However, the technique of differential epidural blockade has problems associated with it.

1. In view of Urban and McKain’s study of intrathecal normal saline,7 the question of whether or not epidural normal saline is a placebo should be answered. To our knowledge, it has not been.

2. It is true that the sensory fibers that originate more cephalad than T1 and the preganglionic sympathetic fibers are separate anatomically. However, solutions injected into the epidural space can spread more extensively than the practitioner intended and confound the results of the procedure. Obviously, this can occur with stellate ganglion block as well. A given patient may develop some sensory block with dilute solutions of local anesthetic—even 0.5% lidocaine. Rather than assuming that a given technique or agent will assure differential blockade, the patient must be evaluated for objective evidence of differential block.3,5

3. With an epidural block, the contralateral extremity cannot be used as a control as it could in a stellate ganglion block.
4. Some practitioners may feel more comfortable performing a stellate ganglion block than a thoracic epidural.

In summary, there are several techniques for administering a placebo in a differential block work-up. Each practitioner must select the one most appropriate to the clinical situation. Our study did not establish the superiority of any technique, nor was it intended to. It is one of the pieces of evidence necessary to establish the legitimacy of using normal saline stellate ganglion blocks as a placebo.

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Autologous Blood Transfusion in Patients with Sickle Cell Trait

To the Editor:—We recently cared for 20-yr-old black male having repair of a Le Fort II fracture. The patient was newly diagnosed with sickle cell trait, but, prior to diagnosis, had donated 2 units of blood for autologous transfusion. The question of whether this blood could be transfused safely was raised. Review of the literature, however, suggests that such blood can be safely used after storage.

One in vitro study found less than 1.5% sickling in blood from patients with sickle cell trait after 28 days of storage in an acid citrate dextrose (ACD) solution.1 Osmotic fragility and hemolysis after 28 days were also within normal limits. An in vivo study using autologous transfusions in patients with sickle cell trait revealed normal RBC survival 24 h after transfusion of whole blood stored for 21 days in ACD solution. However, after 25 days of storage, RBC survival was reduced.1

Another study in which 13 patients received homologous whole blood transfusions from donors with sickle cell trait revealed no adverse side effects.2 A more recent study has shown no evidence of sickling, but did find altered filterability of sickle with sickle cell trait stored in citrate, phosphate, dextrose (CPD) solution after 21 days.3 The clinical significance of this finding is unknown.

It is known that sickle cell trait blood is contained in the pool of banked blood. Furthermore, it must be assumed that this blood has been transfused on numerous occasions. To date, no evidence of adverse reactions have been documented. In fact, it is considered routine practice to transfuse this blood.4

There are two contraindications to the use of blood from donors with sickle cell trait. First, freezing sickle cell trait RBCs is to be discouraged because deglycerolization leads to excessive hemolysis.4,5 Second, exchange transfusions in neonates using such blood has lead to splenic infarction and renal failure.6

With these two caveats in mind, the patient with sickle cell trait should be offered the benefits of autologous blood transfusion when appropriate. The use of this blood in operations where stasis, hypoxia, or hypotension are expected would not be prudent. Studies with ACD and CPD solutions reveal that blood from donors with sickle cell trait can be stored safely for 21 days without risk of sickling or hemolysis. The use of CPDA-1 solution may extend storage time, but further studies are indicated.

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