Addressing Procedural Pain during Interventional Pain Management

Chinmoy Roy

How to cite this article: Roy C. Addressing Procedural Pain during Interventional Pain Management. J Recent Adv Pain 2017;3(3):151-152.

Source of support: Nil

Conflict of interest: None

Dear Editor,

While attempting to alleviate chronic pain, an anxious patient is often subjected to numerous and diverse interventions. This involves injection of contrast material and medicines, to the precise anatomical target, which, in turn, produces significant iatrogenic procedural pain to the patient. Since our primary aim in such procedures remains relief of pain, we should provide an optimal effort to reduce this iatrogenic pain. However, it seems practically impossible to place an injection in a conscious patient without producing any pain.

Despite the fact that many studies were carried out and protocols were devised to reduce this procedural pain, surprisingly we could not find due importance given to this issue in the vast majority of published literature and texts. Procedural pain is produced during skin infiltration and also during insertion of the procedure needle. Traditionally, a 25G needle has been used for skin infiltration and a 22G or 25G spinal needle for procedure thereon. Manchikanti and Vijay Singh advocated the liberal use of local anesthetic to make subcutaneous wheal. Once the needle has passed through the wheal, the stylet could be removed, allowing small incremental doses of local anesthetic to be injected as the needle is advanced further.

We performed a systematic literature search and found that the following modifications might decrease the pain perceived during skin infiltration or the procedure itself. These are (i) diameter of the needle: Needle gauge has shown to significantly affect the occurrence of pain during needle insertion into the skin of human subjects; (ii) preparation used: Combining bicarbonate with lidocaine can reduce pain; (iii) depth: Injection should be subdermal and not intradermal; (iv) Injection technique: Skin puncture should be associated with stretching or pinching the area with the other hand. Skin piercing should be done at 90°, so that the tip of the needle transsects fewer nerve endings. Injection of local anesthetic should be in small volume pulses; (v) topical anesthesia/analgesia: Eutectic mixture of local anesthetic/diclofenac patch could be used; (vi) distraction techniques: Mostly used in children; however, few have been tried in adults with success; (vii) reassurance.

Not only the skin infiltration, but many interventions (e.g., transforaminal epidural steroids, facet joint diagnostic block, piriformis syndrome, quadratus lumborum, and iliopsoas muscle injections) can easily be contemplated by using 27G needle; those are traditionally performed by using needles with wider gauge. Our question is why cannot we switch over to 27G needles for such interventions? One might argue that aspiration through 27G needle could be less reliable and subsequently would increase the incidences of intravascular injection. In comparison to aspiration, a contrast spread under continuous fluoroscopy not only detects intravascular or intraneural injections in a better way, it also confirms the accurate location of the needle.

Some limitations of using a 27G spinal needle have caused us concern, while performing interventions with such a needle. We tried to address them systematically in the following ways. (i) Visualization difficulty: Could be overcome with a good-quality fluoroscopy machine and a better picture could easily be obtained with stylet in place. (ii) Force of injection: Greater force is required while injecting through a smaller gauge (i.e., 27G) needle, which could lead to disconnection at the junction of needle hub and the syringe. Attaching small volume extension tubing with Luer Lock and slower rate of injection could overcome this. (iii) Viscosity: Contrast might be too viscous to inject through a 27G needle. This could be solved by diluting the contrast with normal saline at 1:1 ratio. (iv) Introducer sheath, which arguably contains infection and is not used, but that issue can be addressed with a good aseptic local preparation of skin. (v) Insertion difficulty: A thinner needle, being essentially more malleable, is
difficult to introduce to the target point, as it is prone to change its trajectory in course of its journey. This essential skill of placement of thinner needles to the precise anatomical target could only be achieved with practice. (vi) Onset of action: Once subcutaneous wheal is made, approximately 6 minutes time is required for local anesthetic to act and then we proceed further.

Using a finer needle is advantageous in many ways. (i) If procedural pain is less, then there is less chance of getting confused while comparing the intensity of pain before and after the procedure. It is extremely important, particularly in cases of diagnostic blocks where the subsequent treatment depends on the patient’s subjective perception of pain. (ii) Maximum number of injections could be performed without obvious requirement of sedation or use of any narcotic analgesic. Therefore, one could avoid the potential confounding factors of patient’s subjective feedback during the procedure. (iii) Skin ooze is considerably less compared with wider needles. (iv) It could lead to increase in patient compliance, particularly for those who require injections at multiple occasions. (v) Nearly painless procedure could be reassuring to an anxious patient.

On most of the occasions, we have been able to perform the above-mentioned interventional procedures successfully with 27G spinal needle (Fig. 1). For skin infiltration, we routinely use a 29G; ½ inch needle. After waiting for 6 minutes, we proceed with the 27G needle for the actual procedures. In selective cases where a wider diameter needle insertion is mandatory (such as radiofrequency (RF) ablation–RF procedures), we use a 27G spinal needle to anesthetize the anticipated tract of RF needle insertion. Many of our patients do not require any analgesics for postprocedural pain.

Literature search failed to provide any evidence in favor of the adjustments and modifications mentioned here to help reduce procedural pain as conflicting results were also present. But, in our opinion, patient should be given the benefit of doubt as these factors do not increase pain either. A prospective randomized study with adequate patient population could confirm the validity of our argument.

In conclusion, whenever our purpose is well served with a smaller gauge needle, the use of wider gauge needle should be discouraged.

REFERENCES