Facet joint injection or block is a minimally invasive procedure which introduces a steroid via caudal route, interlaminar and transforaminal approach (Collighan & Gupta, 2010). It is considered as an option to treat lower back pain after a course of medications and/or physiotherapy but before surgery. The procedure has drawn a lot of controversies in the medical field as different studies have demonstrated different outcomes. According to Sethee & Rathmell (2009), the injection has been used for many decades to treat low back pain. Using numerous randomized trials to examine the efficacy of this approach, their findings reveal scant evidence to support the use of epidural injections in those with low-back pain without leg pain or in those with chronic low back pain or leg pain. In my own view however, this method does work since there is rapid resolution of leg pain in patients who receive the injection. Though I concede that there is a certain percentage of failure, I still maintain that the method can be successful, depending on the expertise of the medical personnel, the medications used, technique and the source of pain. For example, in my experience as operating room nurse, when the procedure was introduced in my local hospital, the failure rate was above 50%. But I had a paradigm shift when I worked with an orthopedic surgeon who has massive experience in the field, and who uses fluoroscopy and a combination of steroids and local anesthetics. Although some might object that there is scant evidence that epidural steroids have any beneficial effects in those with acute low-back pain without leg pain, in fact most studies have demonstrated more rapid resolution of leg pain in those who received epidural injections versus those who did not (see, for
example, Sethee & Rathmell, 2009). This paper argues for the importance of facet joint injection as a minimally invasive treatment of chronic lower back pain.

Lower back pain (LBP) is considered the fifth common problem that leads patients to seek medical attention. According to an analysis of National Ambulatory Medical Care survey data, the following were the results:

Approximately 80% of Americans experience LBP during their lifetime. An estimated 15-20% develop protracted pain, and approximately 2-8% have chronic pain. Every year, 3-4% of the population is temporarily disabled, and 1% of the working-age population is disabled totally and permanently because of LBP. Amazingly, LBP is second only to common cold as a cause of lost work time; it is the fifth most frequent cause for hospitalization and the third most common reason to undergo a surgical procedure. Productivity losses from chronic LBP approach $28 billion annually in the United States (Cherkin et al, p.12).

Basically, the survey explains how common, serious and important lower back pain has turned out to be, and therefore there is a great need to involve nurses in educating the public on the causes and preventive measures to undertake in order to sustain a healthy population. This is because nurses spend more time with the patients as compared to the doctors. In this article, I will be discussing the causes and types of back pain, indications for facet joint injection and the medication and techniques used to achieve relief of lower back pain.

Facet joints, also known as "small faces," are small stabilizing joints located between and behind adjacent vertebrae. These structures preserve the flexibility needed to turn, look around and get around (Ray, 2002). However, this motion may be interrupted when there is a loss of normal nerve action. This may occur when the facet joints are subjected to high
stress and strain as in the case of rheumatoid arthritis (Bani, Spetzger & Gilsbach, 2002). This eventually leads to tissue damage which in turn releases contents of the joint. These highly tissue-irritating substances affect the nerve endings of the joint causing low back pain (Ray, 2002). This finding challenges the work of earlier researchers who tended to assume that compression of the nerve secondary to degenerative disease was the main cause of back pain. In this case, the goal of facet joint injection is to reduce the inflammation, denervate the nerve and relieve pain. Hence the main treatment is the use of a class of steroid hormones (corticosteroids) produced from the adrenal cortex which is responsible for regulating stress and immune response. These hormones consist of two types, glucocorticoids and mineralocorticoids, where the former are anti-inflammatory. In other words, the essence of facet joint injection using steroids abolishes the factors which are associated with pain and inflammation.

Lower back pain can also emanate from micro-trauma in the case of a twisting injury, infections, synovial cysts, osteo-arthritis, ankylosing spondilitis and degenerative changes in the neural and vascular structures of the spinal canal associated with aging (Tolessa, 2010). It may also occur within the facet joint itself due to the spillage of contents of nucleous pulposus, releasing substance P and other neuropeptides (Collighan & Gupta, 2010). The resultant effect is that the inflammation sensitizes the nerve endings producing back pain. In this case, facet joint injection is recommended.

Having just argued that despite the causes, facet joint injection has a tremendous effect on the treatment of lower back pain in relation to the irritation of the nerves, let us now turn our attention to the indications and benefits of facet joint injection. To start with, “the injection can be used as a therapeutic procedure following a spinal operation” (Slipman et al, 2003). In other words, patients who experience uncontrollable pain
postoperatively improve greatly following a facet block. Alternatively facet block can be used as an additional therapy for suspected facet joint syndrome in patients whose symptoms fail to respond to conservative treatments of low-back pain.

Facet joint injections can also be used to help determine the structure causing back pain. For example in my experience, when a numbing medication such as lidocaine is administered to the facet joint and the patient experiences a temporary relief, then it can be assumed that the specific region is the source of pain. This coupled with the physical exam, illness narrative and medical narrative such as scans can be very important in guiding further treatment for the patient.

Finally, facet joint is used to differentiate between facet joint pain and other causes of lower back pain. According to Bademci, Basar, Sahin, Ozcack, Anbarci, Evliyaoglu & Keskil (2008), “the procedure seems to be useful for distinguishing between facet joint pains from post-operative pain due to inappropriate neural decompression after lumbar surgery. However, the role of facet blocks in differential diagnosis is very controversial and based on no strong evidence” (p.47). In making this comment, the authors argue that the acute pain due to direct nociceptor activation is usually gone within hours after surgery; but sometimes pain may last much longer: days, weeks, months. This subacute pain is not a direct result of the initial impact but a later development due to changes in the spinal segment (Tolessa, 2010). I have witnessed the use of facet joint injection for midterm intervention for chronic low-back pain. The outcome though is less than that of patients experiencing acute pain.

Although there exists some controversy on the short term and long term results of facet block in the treatment of sciatica (ectopic firing from the nerve root), an alternative periradicular infiltration can be used which aims to deliver local anaesthetic and steroid directly to the targeted pathology under fluoroscopy guidance (Ng, Chaudhary & Sell, 2004).
Whereas Ng et al provide ample evidence that facet block cannot work independently and therefore its efficacy is questionable, Collighan & Gupta (2010), have different findings in research carried out by the American Society of Interventional Pain Physicians (ASSIP). On the basis of a grading system, the recommendations suggest that 1A or 1B indicated a strong evidence for caudal epidural steroid injection with disc herniation; 1B or 1C indicated strong evidence for management of patients with post-laminectomy syndrome and spinal stenosis and 1C, strong evidence for lumbar transforaminal epidural block in managing chronic lower back pain and lower extremity pain. This most recent result presents convincing evidence that the technique used for needle placement, route of administration and underlying cause of low back is the key to relieving pain in patients with chronic back pain. When the proper principle of delivering steroid directly at source is adhered to, having diagnosed the predisposing factors, then clinical improvement will be achieved on the affected patients.

Incidentally, the medications administered to the facet joint are fundamental to the treatment of chronic back pain. In a randomized double blind controlled trial carried out by Ng, Chaudhary & Sell (2005) on the use of steroids versus local anesthetics and steroids, the results showed that corticosteroids did not produce additional benefits for patients with chronic radicular pain. However, a different study demonstrated effectiveness of steroids. Riew, Yin & Gilula (2000) state that," an estimated 67% of the patient group that received both local anesthetic and steroid avoided the need for surgical intervention compared to 28% in the group that received local anesthetic throughout the follow-up period,” (p.1591). The essence of this argument is that positive effects may be achieved from the accumulation of injections the patients received when the response was judged inadequate.

Some of the researchers support the efficacy of facet block while others do not. In an
analytical study published by Slipman, Bhat, Gilchrist, Isaac, Chou & Lenrow (2003), the use of facet joint injections was not clearly shown to be effective, and therefore was not recommended. Additional, a systematic review by Boswell, Colson, Sehgal, Dunbar & Epter (2007), suggested that there is a moderate improvement in symptoms following a facet joint injection. Nonetheless, the overall double blind, randomized placebo-controlled trial performed by Carette, Marcoux & Truchon (1991), found no short or long term improvement.

Of course some will probably disagree that facet block simply offers a window for pain relief during which more rigorous physiotherapy and other treatment modalities can be instituted. Essentially, I am arguing that facet joint block should be advocated before surgery, although other methods of pain relief should be considered such as facet joint radiofrequency denervation which is defined as a functional restoration approach to treatment in which physical and psychologic impairments and functional disabilities are identified, quantified and rehabilitated (Burnham, Holitski & Danu, 2009). Although this method is commonly applied, the evidence basis of facet joints is controversial.

Recent studies on the use of viscosupplementation with ostenil can be used as a modality for pain relief for patients who have poor response to steroid injections. This can be achieved in two ways: taking oral supplements such as glucosamine, chondroitin and methyl sulphonyl methane (MSM), or injecting hyalauronic acid into the affected joint. These methods improve health by firstly increasing the synovial fluid level of hyalauronic acid improving its viscosity and improvement of joint movement, secondly, decreasing levels of prostaglandins hence improving pain and inflammation, and lastly, increasing articular cartilage depth on load bearing surfaces (Walker, 2009).

In my view, I would recommend further randomized, controlled trials to evaluate the
therapeutic uses of facet joint block specifying the exact role they play in the treatment of lower back pain because of the misconceptions surrounding its efficacy. Additionally, the future studies should look at the short and long term pain relief, benefits in the quality of life for the patients undergoing the treatment, any rehabilitation opportunities and the financial implications of the procedure. It seems that the procedure excludes nurses to some extent. This may be because it is perceived as a “one man” job- the surgeon or anesthetist performing the procedure. Nurses, however, can be involved in patients’ psychological care, monitoring pain level, taking and recording vital observations and intervening whenever necessary. Through the achievement of concrete results can we then be sure that the use of facet joint injection is clinically and financially justifiable.

In conclusion, LBP is a condition that affects a majority of the population globally, both young adults and the aged, regardless of gender, race or creed. Although the use of facet joint injection to treat lower back pain has been in existence for many decades, its efficacy still eludes many researchers in the field since the evidence provided is always controversial. However, factors such as professional experience, proper technique for application of steroids, cumulative injections over a period of time and the use of modalities other than facet block play a significant role in pain relief and return to normal functioning for patients suffering from LBP.

References


