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LUMBAR EPIDURAL ADMINISTRATION OF CORTICOSTEROIDS

1. INTRODUCTION

1.1 Persistent pain is an extremely prevalent problem, with an associated disability that is increasing exponentially in most developed countries (1).

1.2 In all patients with severe persistent pain, appropriate evaluation requires assessment of physical, psychological and environmental factors in each patient.

1.3 Treatment of only one dimension of the patient's pain may result in sub-optimal outcome.

1.4 Pain of spinal origin may be experienced in the back, legs or both. Leg pain of spinal origin may be either referred (eg from facet joint or disc) or may arise from nerve root involvement, termed lumbar radicular pain (LRP), which replaces the non-specific term "sciatica"(2)

1.5 LRP has a number of causes(2), some of which may be amenable to treatment of the underlying condition. Thus initial assessment should focus on distinguishing serious pathology ('red flag conditions' eg fracture, infection, tumour, cauda equina syndrome) from less serious causes for 90% of cases.

1.6 Serious pathology must be excluded before LRP is treated symptomatically.

1.7 Lumbar epidural injection of corticosteroids, commonly referred to as "epidural steroid injection" (ESI) is one symptomatic treatment for LRP. This document refers to 'single shot' epidural injections performed either by lumbar (translaminar or transforaminal), or caudal routes. **The risks** may not be similar for each of the various methods. An increased risk of infection exists with the caudal route, because of proximity of potential sources of infection. For lumbar tranforaminal route, six cases of spinal cord infarction were reported between 2002 and late 2009 [similar cases and death also exist from the same method in the cervical spine]. This may be due to foraminal-radicular arterial vessels communicating with the anterior spinal artery system and/or a risk from particulate injectates leading to vascular occlusions (9).

1.8 This document does not refer to the use of in-dwelling epidural catheters.

1.9 The concomitant epidural injection of local anaesthetic poses additional risks regardless of the route of injection – including total spinal anaesthetic. Refer to ANZCA Professional Document PS3 (8)

2. PRINCIPLES OF USE

2.1 ESI is an invasive treatment for LRP and should be reserved for patients whose pain is not adequately controlled by less invasive treatments.

2.2 "Red Flag" and "yellow flag" conditions (major psychological and environmental problems) must be identified and, if possible, dealt with.

2.3 There is level II - III evidence for the efficacy of ESI in patients with LRP(3-7, 12): numbers needed to treat (NNT) for short term relief up to 2 months is 7.3, and for long-term relief from 3 months to 1 year is 13(3-7). There is a lack of well designed, placebo-controlled studies to conclusively define specific indications and techniques for different spinal diagnoses (10).

2.4 This evidence mostly derives from studies of translaminar lumbar epidural injection. Reports of studies between 2000 and 2006 of image guided extra- (or 'peri-') foraminal injection, or transforaminal injection, gave mixed negative and positive results, (9)

2.5 There is no evidence that ESI is effective for back pain without LRP. The evidence for ESI in spinal stenosis indicates a very low success rate, particularly if neural claudication is the principal symptom (5). Preliminary results of ESI which incorporates other agents (eg hypertonic saline) suggest this subject warrants review and further studies (11).

2.6 There is no systematic evidence to support anecdotal claims of ESI causing neurotoxicity and/or arachnoiditis (7).

2.7 An NHMRC report (1994) recommended that epidural steroid injections only be used for radicular pain, after fully informed consent has been obtained (7). See ANZCA Professional Document PS3 Section 1.5

3. METHODS OF ASSESSMENT

3.1 Radicular pain is **defined as: "**Pain perceived as arising in a limb caused by ectopic activation of nociceptive afferent fibres in a spinal nerve or its roots, or other neuropathic mechanisms" (2).

3.2 Clinical features that may be used to identify patients with lumbar radicular pain include: neuropathic pain descriptors, and leg pain radiation pattern that approximates to a narrow band, reminiscent of but not identical to the bands of dermatomes.

3.3 Appropriate assessment, as noted in 1.2 is necessary.

3.4 'Red Flags' if identified require further assessment, investigation and management – sometimes as emergencies (eg medical imaging, neurosurgical).

3.5 Patients should be clinically reviewed after ESI with respect to pain relief, neurological function and side effects. Patients should be instructed to report back if they experience any new symptoms.

4. CLINICAL USE OF LUMBAR EPIDURAL STEROIDS

4.1 The technique of ESI should only be carried out by medical practitioners with appropriate knowledge and training.

4.2 The practitioner planning to perform ESI must take a history and examine the patient to confirm there are appropriate indications for ESI, and that there are no contraindications.

4.3 For safety ESI should be carried out in accordance with PS3 Major Regional Analgesia (8)**. Particular attention is drawn to aseptic technique, appropriate patient monitoring and competency in advanced resuscitation .** Fluoroscopic monitoring may help identify rare but serious misplacement of injectate.

4.4 ESI should be avoided if there is concern about localised or systemic infection, or coagulopathy. Infection risk is additional in diabetic and other immuno-compromised patients.

4.5 ESI should be avoided if any previous injection produced more than a temporary worsening of pain and/or caused deterioration in function.

4.6 Only exceptional cases would warrant more than 3 injections in a 3 month period (5,7) even if ESI provided relief.

4.7 Medical imaging may assist needle placement for ESI, considering patient factors like previous surgery and technique to be used. Radiation safety measures must be applied(13).

4.8 Reported complications of epidural steroid injections include**: epidural haematoma or abscess, discitis, nerve root and/or spinal cord damage including paralysis,** dural puncture headache; temporary increase in pain; steroid associated fluid retention; elevation of blood sugar in diabetes; ACTH suppression and Cushingoid symptoms (5). A negative feedback loop on the hypothalamo-pituitary-ovarian axis can result in decreased levels of circulating hormones, resulting in episodes of menorrhagia in a pre-menopausal population (11).

4.9 In patients whose conscious level is depressed by sedation, or whose mental state is impaired, it will be difficult to obtain informed consent, and to determine if adverse effects, such as needle trauma to nerve structures, occur during injection.

4.10 When epidural local anaesthetic is injected, cardio-respiratory and neurologic function monitoring is mandatory (See ANZCA Professional Document PS3) (8). In particular assess lower limb motor function and ability to pass urine prior to discharging the patient from the procedure recovery area.

4.11 The patient must be given post procedure instructions, including a method of contacting the treatment team if a problem should arise. Follow up is essential (see 3.5).

5. FUTURE DEVELOPMENT

5.1 The precise mechanism for analgesic efficacy of ESI requires clarification. Current suggestions for efficacy in LRP include: (a) inhibition of ectopic discharge in areas of axonal damage in spinal nerve roots; (b) an anti-inflammatory effect against leaked disc material which triggers phospholipase activated arachidonic acid cascade.

5.2 Further controlled studies of ESI are required in relation to:

Clearly defined patient populations with LRP who can benefit

Trials with randomised prospective placebo-controlled double blind design

Appropriate follow-up of pain, functional outcome and side effects

Controlled studies to compare the different techniques of ESI (emerging)

REFERENCES:

1. Blyth F et al “Chronic Pain in Australia: a prevalence study. Pain 2001;89:127-134

2. IASP “Classification of Chronic Pain” 2nd Edition. IASP Press, Seattle. 1994. pp 11-16 and pp 175-195.

3. McQuay H, Moore A. “Epidural corticosteroids for sciatica. In: An evidence-based resource for pain relief” Oxford Univ. Press. Oxford. 1998 pp 216-218

4. Watts RW, Silagy CA. “A meta-analysis on the efficacy of epidural corticosteroids in the treatment of sciatica. Anaesthesia & Intensive Care 1995;23:564-9

5. Abram SE. “Treatment of Lumbosacral Radiculopathy with Epidural Steroids” Anesthesiology 1999 91;6:1937-1941

6. Koes BW et al. “Efficacy of epidural steroid injections for low back pain and sciatica: a systematic review of randomised clinical trials.” Pain 1995;63:279-88.

7. NHMRC “Epidural use of steroids in the management of back pain”. NHMRC, Australia 1994.

8. Australian and New Zealand College of Anaesthetists Professional Document PS3 (2001) “Major Regional Anaesthesia and Analgesia”.

9. Kennedy DJ, Dreyfuss P, Aprill CN, Bogduk N. Paraplegia following image-guided transforaminal lumbar spine epidural steroid injection: two case reports. Pain Medicine 2009; Vol 10, No 8:1389-94.

10. Friedrich JM, Harrast MA. Lumbar epidural steroid injections: indications, contraindications, risks, and benefits. Curr Sports Med Rep. 2010 Jan-Feb;9(1):43-9.

11. Manchikanti L, Cash KA, McManus CD, Pampati V, Singh V, Benyamin R. The preliminary results of a comparative effectiveness evaluation of adhesiolysis and caudal epidural injections in managing chronic low back pain secondary to spinal stenosis: a randomized, equivalence controlled trial. Pain Physician. 2009 Nov-Dec;12(6):E341-54.

12. Parr AT, Diwan S, Abdi S. Lumbar interlaminar epidural injections in managing chronic low back and lower extremity pain: a systematic review. Pain Physician. 2009 Jan-Feb;12(1):163-88.

13. Dickie GJ, Fitchew RS. Medical radiation and the risk of cancer. MJA 2004; 180 (11): 548-549.