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Abstract 363: Pudendal nerve block under non-invasive neurophysiological guidance in patient with pudendal neuralgia

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AIMS OF STUDY

Pudendal neuralgia (PN) is a condition characterized by neuropathic pain along the territory of the pudendal nerve, which can be caused by inflammation, compression or stretching of the pudendal nerve itself. PN prevalence in the general population is about 1/100,000, and the most common risk factors are childbirth, pelvic surgery, strenuous exercise and sacroiliac joint abnormalities. Patients typically complain from hyperalgesia in the pudendal nerve territory while sitting, which exacerbates along the day, relieved by standing or lying down. Pain can be aggravated during urination , defecation or sexual intercourse. PN related pain can severely affect the quality of life, and it is often unresponsive to medical treatment. The Nantes criteria establish that a PN diagnosis requires pain located in the pudendal nerve distribution area, pain intensity increases in the sitting position, and absent during nocturnal hours, not accompanied by objective sensory impairment and, finally, pain is relieved by diagnostic pudendal nerve block (PNB). Neurophysiological guidance with needle electrode was described in the past by one of the author(1). We described a variation of the same technique with non invasive surface electrodes.

STUDY DESIGN, MATERIALS AND METHODS

36 patients, 20 men and 16 women, with the clinical suspicion of PN, were admitted to our outpatient clinic for a diagnostic PNB. The visual analog scale (VAS) score was used to assess the pain severe prior to the procedure and in the following week follow-up assessment. A recording surface electrode was placed above the bulbocavernous muscle (BCM), homolaterally to the targeted nerve. A reference surface electrode was placed in the internal portion of the thigh, whilst a ground electrode was applied above the greater trochanter. Active and reference electrode impedance -had to be less than 5KΩ. The patients were asked to lie in a prone position, and the projection area of the estimated position of the pudendal nerve was labelled on the gluteus surface, the skin was sterilized by povidone iodine and a sterile surgical towel was placed around the skin mark. The needle for PNB was then introduced with a posterior approach, and once the resistance offered by the sacrotuberous ligament gave way, the needle was connected to the stimulating cables of a Neurostyle NS-EMG-C-1 machine with alligator clips. At this point an electrical stimulation starting from 5 - 10 mA was delivered, and the position of the needle was adjusted until a clear surface Compound Muscle Action Potential (C-MAP) could be recorded clearly and could be reproduced with a 1 mA stimulation from the homolateral BCM. Feedback from the patient also helped in confirming that the electrical stimulation delivered by the needle was capable to reproduce paresthesia and/or pain in the area of his/her typical painful symptoms. At this point, the pudendal nerve was injected with bupivacaine 3mg/3mL. Prior to the withdrawal of the needle, few minutes after the delivery of the local anesthetic , the pudendal nerve was stimulated again with a 10mA stimulation. If no C-MAP from the BCM was recorded, the needle was withdrawn, otherwise a second dose of bupivacaine was administered prior to the needle removal. Lower limbs movements power was checked and assessed accordingly to the Medical Reseach Council Scale. A follow-up was then arranged in a week, and the efficacy of the PNB was assessed with the VAS score.

RESULTS

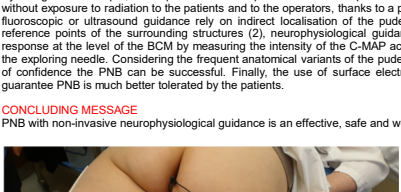
All the patient underwent this procedure without any complication, except for one male patient who experienced a weakness equal to 4/5 on the MRC scale in foot flexion and extension homolaterally. This weakness remitted spontaneously in the following 48 hours. All the patients attended the follow-up appointment. The average VAS score was 8.1 before the PNB, and 2.4 at the 7 days afterwards follow up.

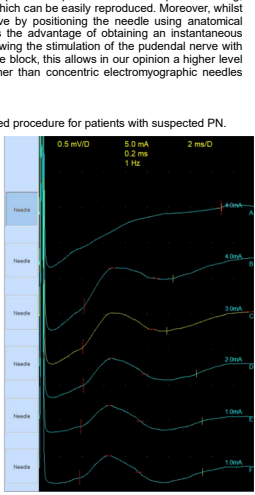
INTERPRETATION OF RESULTS

By using this technique, these patients with suspected PN were capable to have this procedure performed in an outpatient setting, without exposure to radiation to the patients and to the operators, thanks to a protocol which can be easily reproduced. Moreover, whilst fluoroscopic or ultrasound guidance rely on indirect localisation of the pudendal nerve by positioning the needle using anatomical reference points of the surrounding structures (2), neurophysiological guidance offers the advantage of obtaining an instantaneous response at the level of the BCM by measuring the intensity of the C-MAP activity following the stimulation of the pudendal nerve with the exploring needle. Considering the frequent anatomical variants of the pudendal nerve block, this allows in our opinion a higher level of confidence the PNB can be successful. Finally, the use of surface electrodes rather than concentric electromyographic needles guarantee PNB is much better tolerated by the patients.

CONCLUDING MESSAGE

PNB with non-invasive neurophysiological guidance is an effective, safe and well-tolerated procedure for patients with suspected PN.





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