

## Pregabalin and Mecobalamin Combination in the Management of Refractory Neuropathic Pain: A Potential Alternative to Early Surgery in Disco-Radicular Conflicts

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**BACKGROUND:** Neuropathic pain is pain resulting from injury to the nervous system. It is considered peripheral when it is the result of a lesion of the peripheral nervous system and can involve a plexus, a root or a trunk.

**OBJECTIVE:** The aim of this study was to establish the efficacy of a combination of pregabalin and mecobalamin in the medical management of refractory neuropathic pain in the preoperative period, and to highlight its advantages.

**PATIENTS AND METHODS:** This is a cross-sectional analytical study with a duration of 12 months from 30 September 2021 to 30 September 2022. Patients were divided into 2 groups; patients in group A received pregabalin and patients in group B received pregabalin + mecobalamin. Patients who did not receive pregabalin or pregabalin + mecobalamin were not included. Pain intensity was assessed using the visual analogue scale. Time to perform surgery was recorded for all patients. Anonymity and confidentiality were preserved. Data were entered into Epi-Info 7.1.4.0 and analyzed in STATA/SE 11.2.

**RESULTS:** The remission of symptoms in group B appeared to be significantly higher than in group A, and we did not need to maximize the dose of pregabalin as long as mecobalamin was associated with it. The time to perform surgery was much longer and more bearable for patients in group B than in group A; in 81.82% of the patients in group A, an indication for surgery was given within three months of evolution while in group B surgery was performed within three months of evolution in only 18.18% of the patients.

**CONCLUSION:** This study shows that the fixed combination of pregabalin and mecobalamin gives the neurosurgeon time to prepare the operation. Its "minimal effective dose" power preserves the patient from intoxication and dependence.

**KEYWORDS:** Alternative, Mecobalamin, Neuropathic pain, Pregabalin, Surgery.

### INTRODUCTION

Neuropathic pain (NP) is pain resulting from damage to the peripheral nervous system.<sup>1</sup> It is a frequent, intense pain that is resistant to the usual analgesics, requiring an association with adjuvants such as pregabalin and Mecobalamin.<sup>2</sup>

Pregabalin is an anti-epileptic drug known for its analgesic effect in NP. The mechanism of action of pregabalin is poorly understood but the therapeutic effects are thought to be explained by its action on gamma-aminobutyric acid (GABA) transmission. Pregabalin also binds to voltage-gated calcium channels on a specific  $\alpha_2\text{-}\delta$  subunit. This binding is thought to activate descending noradrenergic pathways (involved in pain, among other things) and leads to analgesia. Cobalamin is an essential vitamin used to treat nerve pain and other spinal cord disorders.<sup>3,4</sup> Mecobalamin is also known as methylcobalamin. It is of natural origin and belongs to co-enzyme. It belongs to vitamins and peripheral neuropathies pharmacological group. The molecular weight of mecobalamin is 1344.40. Methylcobalamin helps in the synthesis of neuronal lipids,

regeneration of axonal nerves and has neuroprotective activity, which promotes neurons to function in a proper way and thus improves Alzheimer disease, parkinsonism, dementia and neuropathic syndromes. It is an approved treatment for peripheral neuropathy.<sup>5</sup>

In this study, we analyzed the results of an observation of two groups of patients followed in the preoperative period for NP, under pregabalin for group A and pregabalin + mecobalamin for group B. The aim of the study was to establish the efficacy of a combination of pregabalin and mecobalamin in the medical management of NP in the preoperative period.

### PATIENTS AND METHODS

This is a cross-sectional analytical study with a duration of 12 months from 30 September 2021 to 30 September 2022. We targeted the files of all patients followed in the department for cervical pain, brachialgia, lumbar pain, sciatica, cervico-brachial neuralgia, cruralgia and lumbosciatalgia. The study focused on records of patients who had received prior treatment with pregabalin or pregabalin + mecobalamin before surgery. Patients were divided into 2 groups: group A included patients who received pregabalin and group B included patients who received pregabalin + mecobalamin. Pain intensity was assessed by the visual analogue scale (VAS). The

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correspondence between VAS level and pain intensity Pregabalin and mecobalamin in management of refractory neuropathic pain Sy et al was as follows; pain of mild intensity (VAS between 1 and 3), moderate pain intensity (VAS between 3 and 5), intense pain (VAS between 5 and 7) and very intense pain (VAS greater than 7). The information collected was obtained with the consent of the patients and/or their parents. The anonymity and confidentiality of the information collected were preserved. All the data were entered using Epi Info software version 7.1.4.0 and analyzed using STATA/SE software version 11.2.

**RESULTS**

In this study, 874 patients with peripheral and central NP were included. They were subjected in the preoperative period to symptomatic treatment with adjuvants;

pregabalin for group A and pregabalin + mecobalamin for group B. Patients in group A received 100 mg of pregabalin, three times daily (1 tablet of pregabalin 100 mg x 3 / 24h) while those in group B received 75 mg of pregabalin + 750 mg of mecobalamin “ in fixed combination “, twice a day (1 tablet of (pregabalin 75 mg + mecobalamin 750 mg) x 2 / 24h). The remission of symptoms in group B appeared to be significantly higher than in group A, and we did not need to maximize the dose of pregabalin as long as mecobalamin was associated with it (**Table 1**). Similarly, the time to perform surgery was much longer and more bearable for patients in group B than in group A (**Table 2**). In fact, the improvement of the symptoms of the patients in group B allowed us to defer the surgery to a future date. They all progressed well on this combination therapy (pregabalin + mecobalamin) for at least 6 months with a VAS ≤ 3.

**Table 1: Distribution of patients according to the evolution of pregabalin and pregabalin + mecobalamin**

	Effect (n)	Percentage (%)
<b>Regression of NP /Disc overhang</b>		
Pregabalin	28	22.22
Pregabalin + mecobalamin	98	77.78
<b>Regression of NP / Disc protrusion</b>		
Pregabalin	77	29.84
Pregabalin + mecobalamin	181	70.16
<b>Regression of NP / Herniated disc</b>		
Pregabalin	121	29.73
Pregabalin + mecobalamin	286	70.27
<b>Regression of NP / Spinal cord compression</b>		
Pregabalin	16	19.28
Pregabalin + mecobalamin	67	80.72
<b>Lowest effective dose / moderate DN</b>		
Pregabalin	(3 tablets of 100mg / day)	
Pregabalin + mecobalamin	(2 tablets of 75mg + 750mg / 24h)	

**Table 2: Distribution of patients according to the delay of surgery under pregabalin and pregabalin + mecobalamin**

	Surgery		Total
	Within 3 months	Beyond 6 months	
Pregabalin (group A)	198	42	240
Pregabalin + mecobalamin (group B)	44	588	632
Total	242	630	872

**DISCUSSION**

Since surgery alone does not improve fulminant NP, the choice of adequate adjuvants, associated with other analgesics, is essential. In our series, we observed patients on pregabalin (group A) and pregabalin + mecobalamin (group B), with a remarkable improvement in NP in those in group B. These results are consistent with those of Finnerup et al. and Buckingham whose results suggest that pregabalin and mecobalamin are the

best combination for the management of NP.<sup>2,6</sup> Similarly, in a recent publication, the authors agree with this conclusion in a combination identical to that of group B in our series.<sup>7</sup>

Given that all surgery carries a risk, it is the goal of all surgeons to extend the time of surgery and not to rush to perform an operation with all the risks and complications that this entails. As our results show, the induction of pregabalin + mecobalamin allowed us to avoid early

surgery in 588 patients. Tolerance was good, allowing patients to resume their daily activities and even to eliminate anxiety, irritability, disorders of sleep, appetite and libido as well as depressive states related to NP.

## CONCLUSION

The fixed combination of pregabalin + mecobalamin brings us many advantages. Not only because of its clinical efficacy, but also because it gives the surgeon time to prepare the operation well in order to minimize complications. Thanks to its “minimal effective dose” power, it offers purchasing power to all economic classes of our society.

## Abbreviations

GABA: Gamma-aminobutyric acid.

NP: Neuropathic pain.

VAS: Visual analogue scale.

## Disclosure

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