

Tapentadol PR vs. Oxycodon CR – a study of a mechanism-based treatment in chronic neuropathic pain syndromes

Introduction

Tapentadol acts as μ -receptor agonist and noradrenalin-reuptake-inhibitor. This dual mechanism might make it especially suitable in the treatment of positive sensory phenomena common in neuropathic pain, e.g. mechanical hyperalgesia and allodynia.

Aims

The aim of the study was to compare the effect of oxycodone and tapentadol in chronic neuropathic pain. It was hypothesized that the noradrenalin-reuptake inhibition of tapentadol may induce a higher reduction in positive sensory phenomena compared to oxycodone while having a similar effectiveness for overall pain intensity.

Methods

In this randomized, open pilot study, 5 out of 40 planned patients with chronic peripheral neuropathic pain syndromes were included. 3 patients displaying positive sensory signs in quantitative sensory testing (dynamic mechanical allodynia, mechanical hyperalgesia, and/or temporal summation) at baseline received either oxycodone (titrated to a maximum daily dose of 120mg) or tapentadol (titrated to a maximum daily dose of 500mg) for 12 weeks.

Results

The study had to be terminated prematurely due to poor recruitment, therefore the results can only be presented as a case-report series. Two patients receiving tapentadol had a pain reduction of -2 and -6 points on the NRS, respectively, a reduction of mechanical allodynia and pain sensitivity. The one patient receiving oxycodone had a pain reduction of -3 points, a reduction of mechanical allodynia but an increase of mechanical pain sensitivity.

Conclusions

Due to the small sample size, the hypothesis could not be statistically confirmed. Results suggest that tapentadol might be efficacious in the treatment of spontaneous pain and mechanical hyperalgesia and allodynia.

Acknowledgments/Disclosures

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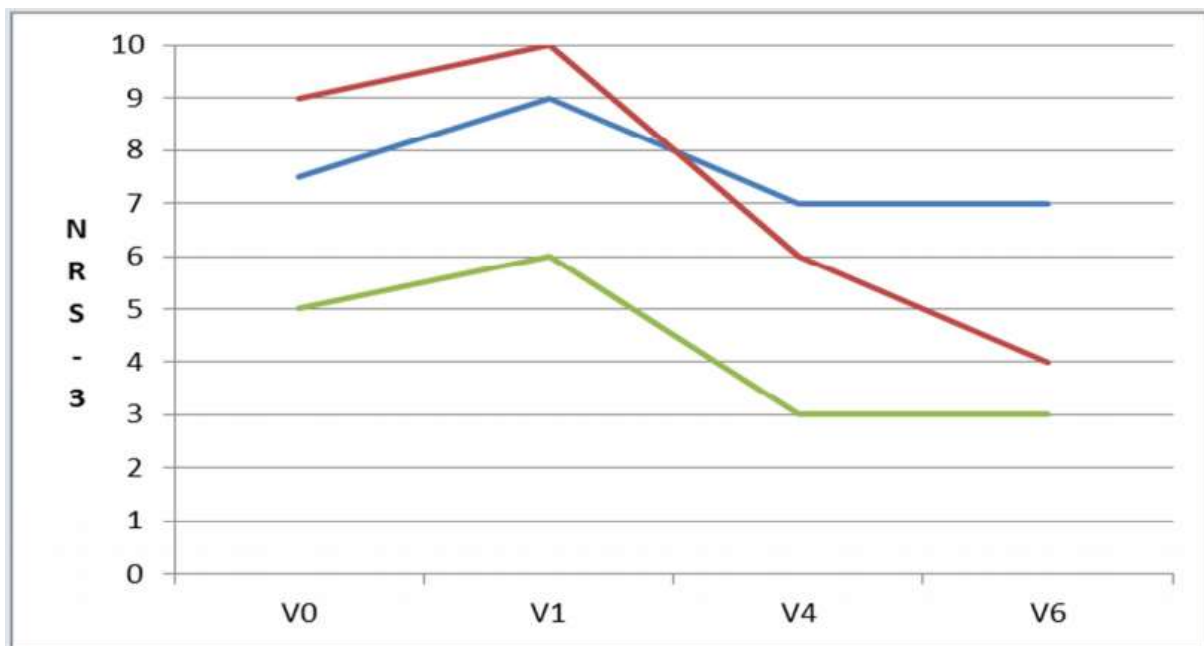


Fig. 1 Course of Average Pain Intensity in the last 3 days on the Numeric Rating Scale (NRS-3) Blue and red line: patient treated with tapentadol, green line: patient treated with oxycodone V0, Enrollment; V1, Randomization/Baseline Visit; V4, 6 weeks after Baseline Visit, titrated to constant dose; V6, Last Visit, 11 weeks after Baseline Visit 0, no pain; 10, worst pain imaginable

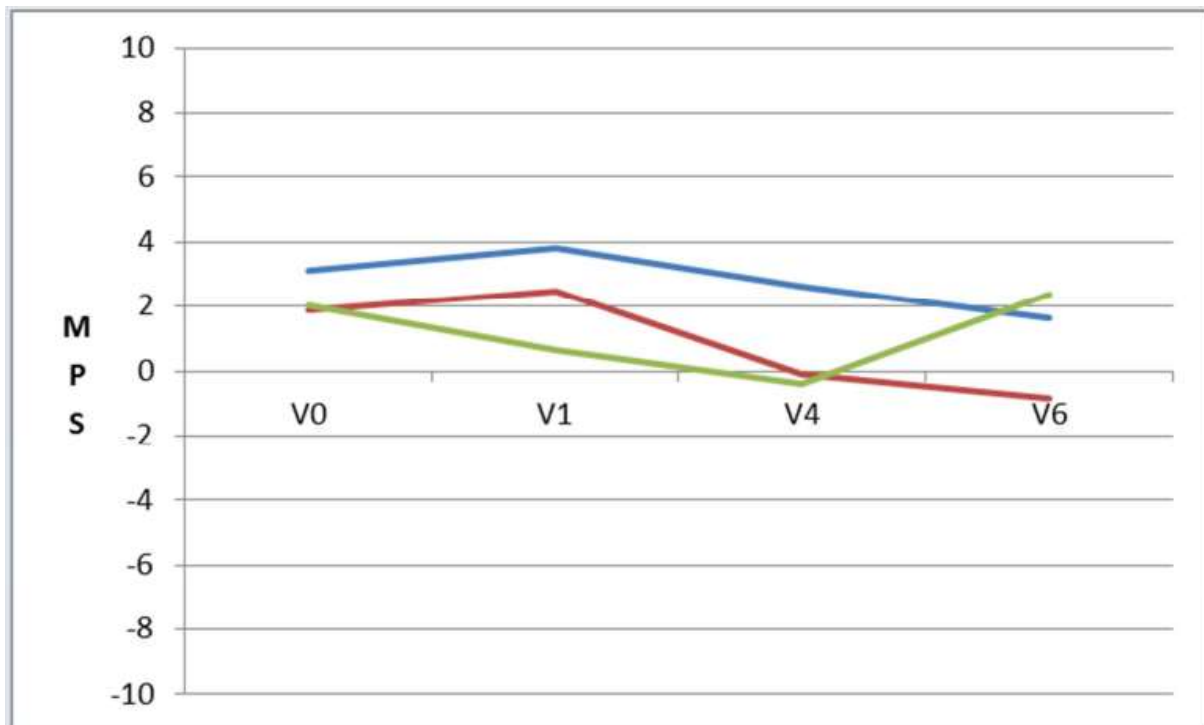


Fig. 2 Course of Mechanical Pain Sensitivity (MPS) Blue and red line: patient treated with tapentadol, green line: patient treated with oxycodone V0, Enrollment; V1, Randomization/Baseline Visit; V4, 6 weeks after Baseline Visit, titrated to constant dose; V6, Last Visit, 11 weeks after Baseline Visit MPS values after Z-transformation adjusting the parameters for gender and age decade

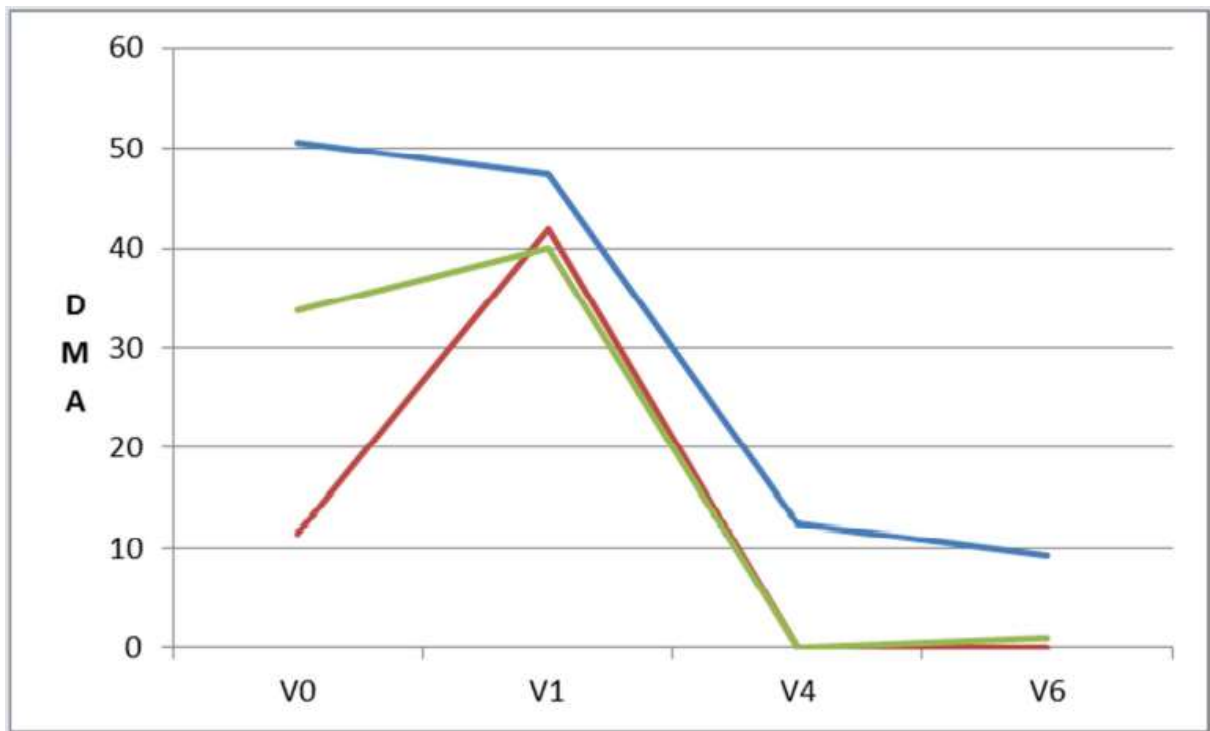


Fig. 3 Course of Dynamic Mechanical Allodynia (DMA) Blue and red line: patient treated with tapentadol, green line: patient treated with oxycodone V0, Enrollment; V1, Randomization/Baseline Visit; V4, 6 weeks after Baseline Visit, titrated to constant dose; V6, Last Visit, 11 weeks after Baseline Visit DMA values after logarithmic data transformation