Background

In neuropathic pain it has been suggested that pain phenotype based on putative pain mechanisms may predict response to treatment.

Aim

The objective of this trial was to test if the sodium channel blocker oxcarbazepine had a superior effect in patients with peripheral neuropathic pain with a pain phenotype suggesting sodium channel blockade as major molecular pain mechanism as compared to patients without this pain phenotype.

Methods

This was a randomised, double-blind, placebo-controlled, and phenotype-stratified study with 2 6-week treatment periods of oxcarbazepine (1800-2400mg) and placebo. The primary efficacy measure was change in median pain intensity between baseline and the last week of treatment measured on an 11-point numeric rating scale, and the primary objective was to compare the effect of oxcarbazepine in patients with and without the irritable nociceptor phenotype as defined by hypersensitivity and preserved small nerve fibre function determined by detailed quantitative sensory testing.

Results

Ninety-seven patients with peripheral neuropathic pain due to polyneuropathy, surgical or traumatic nerve injury, or postherpetic neuralgia were randomised. The intention-to-treat population comprised 83 patients: 31 with the irritable and 52 with the nonirritable nociceptor phenotype. The median age was 59 years (range 21 – 82 years) and 52 were male. In the total sample, oxcarbazepine relieved pain of 0.7 points (on a numeric rating scale 0-10; 95% confidence interval [CI] 0.4-1.4) more than placebo (P=0.015) and there was a significant interaction between treatment and phenotype of 0.7 (95% CI 0.01-1.4, P=0.047). The number needed to treat to obtain one patient with more than 50% pain relief was 6.9 (95% CI 4.2-22) in the total sample, 3.9 (95% CI 2.3-12) in the irritable, and 13 (95% CI 5.3-∞) in the nonirritable nociceptor phenotype.

Conclusion

Oxcarbazepine is more efficacious for relief of peripheral neuropathic pain in patients with the irritable vs the nonirritable nociceptor phenotype.

Reference

Demant DT, Lund K, Vollert J, Maier C, Segerdahl M, Finnerup NB, Jensen TS, Sindrup SH. The effect of oxcarbazepine in peripheral neuropathic pain depends on pain phenotype: a randomised, double-blind, placebo-controlled phenotype-stratified study.
Pain 2014;155:2263-73.