

## Innovation in the use of amitriptyline for pain treatment by combination with omega-3 fatty acids

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Combination therapy is often used to increase the clinical utility of analgesic agents. The co-administration of two compounds may achieve analgesia at doses lower than those required for either compound alone, leading to enhanced pain relief and a reduction in adverse effects. A tricyclic antidepressant, such as amitriptyline, is often used to treat many types of persistent pain, with their efficacy in this regard being well established. These conditions include diabetic neuropathy, postherpetic neuralgia, headache, arthritis, and chronic back pain. The disadvantages of using amitriptyline include side effects such as cardiovascular problems (e.g., hypertension, postural hypotension and arrhythmias), drowsiness, dry mouth, nausea, changes in body weight and constipation. The aim of this study was to examine in rats the antinociceptive effect of omega-3 fatty acids alone as well as in combined chronic treatments with amitriptyline (AMI) in the hot plate test. We found that compared to control, omega-3 fatty acids dose-dependently increased the latency time, indicative of an antinociceptive effect, with the co-administration of AMI (20 mg/kg/day) and omega-3 fatty acids (0.72 g/kg/day) revealing a higher antinociceptive efficacy than the individual treatments. The combination of omega-3 fatty acids with amitriptyline might produce better analgesia, thereby increasing the efficacy of pain management and reducing side effects through the use of a smaller dose of antidepressant.

### Biography

Carlos Horacio Laino received his PhD degree in Pharmacology from University of Buenos Aires, Argentina and completed his Post-graduate studies in the laboratory of the Research Department of Neuroscience, Center for Addiction and Mental Health, Research Foundation of Toronto, Canada. Then, he joined the National University of La Rioja (Argentina) in 2005 and is currently an Associate Professor of Pharmacology and Toxicology. He further received an award for Innovative Research Work from the National Innovation Submit & Showcase – Tech Connect World in 2013 and 2014. His research focuses on drug discovery in several therapeutic areas, especially pain.

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