

# Non-arteritic anterior ischaemic optic neuropathy

Study results suggest omega 3 fatty acids may provide a dose of hope for sufferers

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**H**igh doses of omega 3 fatty acids rich in eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) can improve visual acuity in patients with non-arteritic ischaemic optic neuropathy (NAION) within 3 months according to the results of the study detailed below. The treatment can battle neuro-inflammation and improve visual acuity.

NAION is a visually disabling disease involving a segmental or generalized infarction of the optic nerve caused by occlusion of the short posterior ciliary arteries.<sup>1</sup> Optic nerve ischaemia causes permanent loss of vision due to primary damage of retinal ganglion cell (RGC) axons and subsequent death from apoptosis.<sup>2</sup>

NAION makes up 95% of all the cases of anterior ischaemic optic neuropathy and is the most common cause of acute optic neuropathy in people over the age of 50, affecting 2–10 individuals per 100 000.<sup>1</sup>

Up to the present time there is no generally accepted, well-proven effective treatment for this condition.<sup>3</sup> The majority of treatments proposed for NAION are empirical and either presume to act on thrombosis, on the blood vessels or on disc oedema.<sup>1</sup> Visual loss is usually sudden and permanent. The Ischaemic Optic Neuropathy Decompression trial is the only randomized control study for the treatment of NAION. It reported no benefit from surgical intervention and suggested that surgical intervention may even be harmful.<sup>4</sup>

A retrospective study by Kinori *et al.* evaluated the effect of intravenous corticosteroids on patients with NAION with disappointing results — they reported no improvement of the visual outcome of NAION patients treated with intravenous (IV) corticosteroids compared with the untreated patients.<sup>3</sup> Also the data on intravitreal steroid

treatment are disappointing, with dangerous ocular side effects such as high intraocular pressures and cataract formation.<sup>5</sup> The side effects of systemic steroids are of concern especially in high risk patient groups due to diabetes instability, mood changes, hypertension and weight gain.<sup>3</sup> We believe, therefore, that randomized control trials to establish the effect of steroids in patients with NAION are essential.

One prospective study evaluated the benefit of intravitreal bevacizumab to patients with NAION. The authors reported no difference between the intervention group and control group in visual field, visual acuity or optic nerve thickness.<sup>6</sup>

Inflammation seems to be involved in the pathogenesis, development and progression of NAION. It results in oligodendrocyte destruction and increased RGC loss, which contributes to the reduced vision in patients with NAION.<sup>7</sup> Elevated concentration of high-sensitivity C reactive protein (hs-CRP) has also been reported in patients after a minimum period of 2 months following NAION.<sup>8</sup>

Cellular inflammation plays a major role following optic nerve infarct, with the involvement of both polymorphonuclear leukocytes and macrophages.<sup>9</sup> Histological tissue analysis from an autopsy obtained 20 days after the onset of NAION revealed tissue inflammation with accumulation of microglia and extrinsic macrophage invasion.<sup>9</sup>

## IN SHORT

► According to recent study data, high doses of omega 3 fatty acids rich in EPA and DHA can improve visual acuity in patients with NAION. Here, the authors present details of the study, highlighting their outcomes.