Omega-3, -6 and vitamin E could cut MND risk

4/27/2006 - **Omega-3 and -6 fatty acids and vitamin E in the diet could slash the risk of motor neurone disease (MND) by 60 per cent, say new research from the Netherlands.**

According to the Motor Neurone Disease Association, the disease affects about seven people in every 100,000, with life expectancy of only two to five years. The disease characterized by the gradual death of motor neurones in the brain, which then stops muscles from working. The cause is unknown and there is no cure.

The new study, published on-line in the *Journal of Neurology* (doi: 10.1136/jnnp.2005.083378), reports that a diet rich in polyunsaturated fatty acids (omega-3 and omega-6) and vitamin E could reduce the risk of developing the disease.

The researchers, from the University Medical Centre, Utrecht, investigated the diets of 132 people with a form of MND called amytrophic lateral sclerosis (ALS). Their dietary habits were compared to 220 control subjects who did not have the disease. Dietary habits were evaluated using a validated 104-item food frequency questionnaire.

While energy intake and supplement intake was similar between the groups, the researchers found that intake of vitamin E and polyunsaturated fatty acids (PUFAs) was noticeably lower in the ALS cases, which agreed with the original hypothesis.

People whose intake was more than 32 grams of PUFAs per day had a 60 per cent lower risk of ALS than those who consumed less than 25 grams per day. No differentiation between omega-3 and omega-6 was performed by the researchers.

A daily intake of vitamin E over 18 milligrams was associated with a 60 per cent reduction in the risk of ALS.

No relationship between flavonol, lycopene, or vitamins B2 and C were observed by the researchers.

"This study shows that higher premorbid dietary intake of PUFAs and vitamin E was associated with a 50 to 60 per cent decreased risk of developing ALS," wrote lead author Jan Veldink.

The mechanism, say the researchers, is more than just the nutrients' individual benefits. The omega-3 fatty acid, alpha-linoleic acid, for example, has been reported to protect neurones. Docosahexaenioc acid (DHA) is involved in the membrane of ion channels in the brain, making it easier for them to change shape and transit electrical signals. Vitamin E, say the scientists, inhibits lipid peroxidation which leads to oxidative stress.

The nutrients' protective activity, says Veldink, is a case of the sum greater than the parts.

"The combined analysis, including the interaction term, indicates that vitamin E and PUFAs increase their separate protective effects. Vitamin E may act directly to reduce the risk of ALS as a known inhibitor of lipid peroxidation, but it could also act indirectly through inhibition of peroxidation of PUFAs.

As a result, a higher level of PUFAs will be available biologically," said Veldink.

Although further research is clearly needed, the results do fit with reports on the benefits of this nutrient combo for cognitive diseases. According to other studies, the risk of Alzheimer's disease could be reduced by a diet risk in plant lipids, fish, or by eating a Mediterranean-style diet, rich in both PUFAs and vitamin E.

The study has several limitations, including being non-population based and depending on dietary recall of both the cases and controls. Veldink and his colleagues are currently conducting a population-based case-control study to further test their hypothesis.

Famous people with MND include the actor David Niven and Professor Stephen Hawking.