Comment on: Efficacy of omega-3 fatty acid supplementation on serum levels of tumour necrosis factor-alpha, C-reactive protein and interleukin-2 in type 2 diabetes mellitus patients

I read with interest Malekshahi Moghadam et al’s article,1 “Efficacy of omega-3 fatty acid supplementation on serum levels of tumour necrosis factor-alpha, C-reactive protein and interleukin-2 in type 2 diabetes mellitus patients”, which showed that omega-3 fatty acid supplementation can decrease the serum levels of tumour necrosis factor-alpha (TNF-α) and interleukin-2 in type 2 diabetes mellitus patients. The authors recommended that diabetic patients take omega-3 fatty acid supplements on a daily basis.1 It is important to mention in this context that single nucleotide polymorphisms (SNPs) modulate the ability of fish oil to decrease TNF-α production.

Approximately ten years ago, a study was conducted in which 111 healthy men were tested for polymorphisms in the TNF-α (TNF*1 and TNF*2) and lymphotoxin (LT)-α (TNFB*1 and TNFB*2) genes, and the lipopolysaccharide-induced TNF-α production by peripheral blood mononuclear cells was measured after a 12-week period of fish oil supplementation (6 g/day). This study revealed that in the group with the highest TNF-α levels, homozygosity for TNFB*2 was 2.5 times higher. In the group with the lowest TNF-α levels, fish oil supplementation significantly increased the mean TNF-α production from 1,458 ± 600 ng/L to 3,809 ± 2,571 ng/L. In the group with the highest TNF-α levels and the most homozygotes for TNFB*2, the mean TNF-α production decreased significantly from 9,277 ± 4,338 ng/L to 5,323 ± 3,941 ng/L.2 The anti-inflammatory effect of fish oil is also affected by body mass index and possession of the LT-α+252 A allele.3

Thus, the variability of genetic expression through the SNPs of the genes involved is an important determinant of the course and outcome of an inflammatory process.3 For this reason, when considering individual reactions to nutrients that modulate or might modulate inflammatory reactions, it is always advisable to take into account the genetic disposition of the individual.2

Yours sincerely,

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References

Editor’s note: The authors, Malekshahi Moghadam et al, have declined to respond to the above letter.