Singapore Med J 2013; 54(1) : 53

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

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