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Comment on the Article by Torun et al. Entitled 'Serum Paraoxonase 1 Activity and Oxidative Stress in Pediatric Patients with Pulmonary Tuberculosis'

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Dear Editor,

We read with great interest the article by Torun et al. [1] entitled 'Serum paraoxonase 1 activity and oxidative stress in pediatric patients with pulmonary tuberculosis' in which the investigators reported that lower paraoxonase 1 (PON-1) levels were detected in these pediatric patients with pulmonary tuberculosis compared with healthy controls. They suggested that increased oxidative stress might lead to the downregulation of serum PON-1 activity in patients with pediatric tuberculosis. However, we think that some points should be discussed.

PON-1 hydrolyzes the organophosphate substrate paraoxon and aromatic esters such as phenylacetate and has been shown to inhibit low-density lipoprotein oxidation. Previous studies [2, 3] showed that certain diseases such as psoriasis, inflammatory bowel disease, hypertension, systemic lupus erythematosus, hyperlipidemia and acute phase response status could affect serum PON-1 activity in addition to the diseases which the authors stated [1]. The authors did not mention such contributing factors. In this regard, simple laboratory tests such as routine biochemistry tests, erythrocyte sedimentation rate and C-reactive protein could be carried out to exclude potential confounders. Also, dietary supplements such as vitamin C, vitamin E, iron, zinc and flavonoids can alter PON-1 activity [4].

Another contributing factor for PON-1 activity is the use of medicine: lipid-lowering drugs, aspirin, fenofibrate, dexamethasone and phenobarbital also affect PON-1 activity [5]. Although the study groups consisted of children, there could be different diseases related to the use of medicine.

In conclusion, although this study contributed valuable information to the medical literature, clarifying these concerns could certainly provide a clearer picture when interpreting PON-1 activity among participants.

Disclosure Statement

The authors declare no conflicts of interest.

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Reply

Paraoxonase: A Multifunctional Biomolecule

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Dear Editor,

We thank Agilli et al. [1] for their interest in our paper entitled 'Serum paraoxonase 1 activity and oxidative stress in pediatric patients with pulmonary tuberculosis'. Paraoxonase enzymes (PONs) are lactonases that have the ability to prevent oxidative stress and fight inflammation [2]. PON-1 is a high-density lipoprotein-associated enzyme esterase which appears to contribute to the antioxidant and antiatherosclerotic capabilities of high-density lipoprotein and has been shown to reduce reactive oxygen species in human endothelial cells, vascular smooth muscle cells and fibroblasts [3].

We sincerely thank Agilli et al. for their valuable comment pointing out the impact of dietary intake of antioxidant vitamins on PON-1 activity [4]. Increased intakes of vitamin C, A and E are associated with increased PON-1 activity [5]. In our study, both study and control groups were composed of patients who had no history of any drug use. The standard biochemical parameters and complete blood count including hemoglobin, hematocrit, ferritin and vitamin D levels were compared in both groups. The mean

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hemoglobin, hematocrit, ferritin and 25-hydroxyvitamin D levels were not statistically different between study and control groups [1]. The erythrocyte sedimentation rate and C-reactive protein assessments were performed in the tuberculosis group but not in controls because the control group was chosen from patients who had been admitted to our clinic for reasons other than infectious and inflammatory diseases.

Please note that we measured the total antioxidant levels that would reflect the actual total antioxidant status rather than measuring the vitamin levels or antioxidant molecules selectively. The antioxidant levels were lower in the tuberculosis group compared with the control group. This result suggested that the dietary antioxidant vitamin status was poor in tuberculosis patients.

Disclosure Statement

The authors declare no conflicts of interest.

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