The interferon-gamma-based QuantiFERON®-TB Gold In-Tube test and the type of haemodialysis process

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In a recent study by Hoffmann M et al. [1], interferon (INF)-gamma-based QuantiFERON®-TB Gold In-Tube test (QFT-G) was found to be a valid alternative to the TST in haemodialysis (HD) patients. They also noted that INF-gamma secretion in HD patients was significantly lower than in healthy controls. This was independent of the nutritional status (serum albumin, nPCR) and of the amount of dialysis (spKt/v).

In this study the type of haemodialysis treatment (whether high-flux or low-flux) was not mentioned by the investigators. In a report by Lonnemann G et al. [2], a switch to high-flux haemodialysis reversed suppressed INF-gamma production in ESRD patients on low-flux haemodialysis treatment. Also the timing of blood sampling for the above test was not mentioned in details in the above mentioned study.

We think that the above points should be borne in mind when performing such a study in this group of patients

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Authors' reply

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Dear Editor

We are grateful for the comments made by Hursitoglu and colleagues in reference to our article on the use of an interferon-γ release assay (IGRA) in haemodialysis (HD) patients [1].

Indeed the HD-modality – high- versus low-flux HD – might have an additional effect on the immune function. High-flux HD is thought to be more efficacious in removing potential uraemic toxins that possibly jeopardise the immune function. In a recent observational study the *ex vivo* interferon-γ (IFN-γ) response after stimulation with heat-killed *Staphylococcus epidermidis* was higher and inversely correlated with β2-microglobulin levels in high-flux HD compared to low-flux HD [2]. Nevertheless it remains controversial if the described association is causative for the impaired IFN-γ secretion. Furthermore we advise caution in directly comparing the IFN-γ secretion by different *ex vivo* stimulation techniques. These techniques target different cell populations of the innate or adaptive immune system and use distinct activation pathways.

Although we agree with Hursitoglu and colleagues that a direct comparison of the impact of different HD-modalities on the mitogen/TB-specific IFN-γ response may be of interest for the IGRA-assessment, we could not perform such a comparison in our study because all patients were treated with high-flux HD.

The second aspect raised by Hursitoglu and colleagues concerns the timing of the blood sample for the IGRA. As described in the methods section, blood for the IGRAs was taken before starting the HD-treatment and before the tuberculin skin test (TST) was applied. This timing aimed to avoid the pro-inflammatory disturbances of the immune system caused by the HD-treatment itself and a potential booster phenomenon through the TST [3].

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