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## Re: Kidney Function and Metabolic Profile of Chronic Kidney Disease and Hemodialysis Patients During Ramadan Fasting

Dear Editor,

We Read with great interest the article by Al Wakeel about fasting effects on hemodialysis, published in the *Iranian Journal of Kidney Diseases*.<sup>1</sup> Ramadan is one of the months in Islamic calendar in which people have been given glade tidings to good and blessing. Muslims after the age of puberty abstain from eating and drinking from dawn until sunset during Ramadan. They have two meals per day, *Iftar* at sunset and *Sohor* before dawn and there is no limitation on any special food items during sunset until dawn. Dispensation from fasting is allowed during sickness, menstruation, pregnancy, breast feeding, and travel, and also for debilitated elderly people. The philosophy of fasting in the Islamic culture is to teach endurance and train patience and to feel for the sufferings of the deprived.<sup>2</sup> Since the Arabic calendar employs a lunar cycle, the Arabic year contains 354 days. So, Ramadan moves back eleven days every year and may be situated in any of the four seasons. Thus, fasting hours can be variable from 11 to 18 hours.

Theoretically, it seems that abstain from drinking may lead to acute kidney damage due to dehydration, especially in patients with salt-wasting nephropathy. The question is whether Ramadan with special type of fasting has any adverse effect on patients with mild to moderate kidney failure. Several studies have shown that fasting during

Ramadan not only does not have any adverse effect on healthy people, but also can improve some clinical and biochemical parameters.<sup>3,4</sup> Recently, in a review article, Khedmat and coworkers evaluated a few investigations and concluded that fasting Ramadan did not induce abnormalities of urinary volume, osmolality, pH, solute and electrolyte excretion, serum urea and creatinine levels, or serum sodium and potassium balance in healthy people, and if any it was insignificant.<sup>5</sup> Fakhrzadeh and colleagues reported a significant improvement in weight and body mass index, fasting plasma glucose, and lipid profile in adults after fasting.<sup>3</sup> They also showed neither systolic nor diastolic blood pressure were worse during Ramadan fasting.<sup>3</sup>

Although Islam has exempted sick individuals from fasting, these people enjoy fasting according to their religious believe. They often ask their physician if they can fast during Ramadan. The impact of fasting on kidney conditions such as kidney transplant,<sup>6-8</sup> renal calculus formation,<sup>9</sup> and other disorders has attracted the attention of investigators. Argani and colleagues evaluated some biochemical and immunological parameters in 24 stable kidney transplant recipients and showed that Ramadan fasting was not harmful for these patients in a period of 12 hours fasting pattern.<sup>6</sup> We also studied serum creatinine before and after Ramadan

in 19 recipients who voluntarily chose to fast and compared with 20 matched recipients, who had not fasted for 3 tandem years.<sup>7</sup> Our study suggested that fasting during the month of Ramadan was safe and had no significant harmful effects on kidney transplant recipients with normal renal function. In another study on 41 Ramadan fasting kidney transplant recipients and 41 matched controls, we showed that there was no significant difference in estimated glomerular filtration rate (GFR) before and after Ramadan fasting in both group.<sup>8</sup> Other studies on kidney transplant recipients obtained similar results.<sup>10,11</sup>

AL Wakeel evaluated the effect of Ramadan fasting on some biochemical and clinical parameters in both chronic kidney disease group (CKD, stage 3 and above, 39 patients) and hemodialysis group (32 patients) who are a significant proportion of kidney patients.<sup>1</sup> In the current work, none of the evaluated parameters had a significant difference during the three measurements done before, during, and after Ramadan in the CKD patients.<sup>1</sup> Nevertheless, there was a significant difference in the mean value of serum creatinine, serum albumin, uric acid, and leukocytes in hemodialysis patients. In this regard Bernieh and coworkers designed an observational study and checked some factors in 31 CKD patients who decided to fast, before and after Ramadan.<sup>12</sup> They observed an insignificant reduction in the mean of body weight, systolic and diastolic blood pressure, triglycerides, and urinary protein excretion. More interestingly, they found a significant improvement in estimated GFR after fasting. This study had a small sample size and did not have a control group, so it seems its results are less valuable than comparative studies with adequate patients.<sup>12</sup>

In another study, EL-Wakil and colleagues conducted a prospective study on 15 Ramadan fasting CKD patients and 6 healthy volunteers as control.<sup>13</sup> They estimated GFR using diethylene triamine pentaacetic acid dynamic renal scan, and tubular cell damage using the level of N-acetyl-B-D-glucosaminidase before and after fasting Ramadan. There was not a significant difference in the mean of GFR and blood pressure at the end of Ramadan, compared to before it. However, the change in urinary N-acetyl-B-D-glucosaminidase from the baseline was significantly higher in the CKD group than the control group. These results indicate that

although GFR change during fasting is negligible because of the compensatory mechanisms of the kidney, tubular cells can be affected by fasting. However, the control group of this study could better be from CKD patients, too, who did not fast.

The current investigation by Al Wakeel is the first comprehensive study about the effect of fasting on hemodialysis patients in which hemodialysis patients decided to fast all of the days in Ramadan.<sup>1</sup> Although, AL Wakeel showed a significant differences in serum creatinine, serum albumin, uric acid and leukocytes, it seems it needs further comparative studies to evaluate the effect of fasting in hemodialysis patients.<sup>1</sup>

In conclusion, although most studies have shown that Ramadan fasting did not have any significant adverse effect on kidney patients, these studies enrolled small samples of patients and worked on mild to moderate kidney patients; however, it seems the decision for allowing to fast in CKD patients, especially those with severe kidney failure, requires more randomized clinical trials. We strongly suggest that if there is a salt-losing nephropathy, patients should be discouraged to fast due to harmful effects of dehydration. Finally, the only person who can decide about whether patients can fast or not is their physician because of the comprehensive understanding about their patients' situation.

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## Re: Interferon-gamma Release Assay Agreement With Tuberculin Skin Test in Pretransplant Screening for Latent Tuberculosis in a High-prevalence Country

Dear Editor,

We read with interest the article published by Savaj and colleagues in the past issue of the *Iranian Journal of Kidney Diseases*.<sup>1</sup> Tuberculosis (TB) is a serious public health problem. It is the second most frequent cause of death of infectious diseases worldwide with about 2 million deaths per year,<sup>2</sup> and one of the most important infectious diseases in Iran. The incidence of active tuberculosis among patients on long-term dialysis is 6.9 to 52.5 times higher than in the general population.<sup>3,4</sup> In hemodialysis patients, there is a relative compromise in acquired cell-mediated immunity, which constitutes the major determinant of host resistance for further development of disease.<sup>5</sup> Tuberculosis is a serious infection affecting organ transplant recipients including kidney transplant recipients. Development of TB occurs in transplant recipients 20 to 74 times more than it does in the general population. The diagnosis and management of TB in this group is challenging, because the presenting symptoms can be atypical, and the therapy may lead to potential toxicity or interactions with immunosuppressive medications.<sup>6</sup>

Because of the increased prevalence of latent TB infection in dialysis patients and the high risk of developing active disease, screening for latent

TB infection in this population prior to kidney transplantation is recommended. The tuberculin skin test (TST), which is the classic diagnostic tool for latent TB infection has several major drawbacks, including poor sensitivity (high prevalence of anergy) and specificity (false positive tests in those vaccinated).<sup>7</sup> In recent years, new immunological assays that measure lymphocyte response to stimulation of ESAT-6 and CFP-10 antigens from *Mycobacterium tuberculosis*, called interferon- $\gamma$  release assays (IGRAs), including QuantiFERON Gold IT and T-spot TB, have become available and appear to be more reliable in immunosuppressed populations. These assays are not affected by previous vaccination, thus with superior sensitivity and specificity compared to the previously available tests for the diagnosis of TB.<sup>7</sup>

Savaj and colleagues reported the results of screening of latent TB infection in hemodialysis patients who were candidates for kidney transplantation. Tuberculin skin test and IGRA were positive in 43.5% and 23.4%, respectively with poor correlation. The authors, however, have not explained the reason of the discordant results.<sup>1</sup> When compared to TST, IGRAs have some operational advantages that are particularly relevant in immunocompromised patients. QuantiFERON