

Table 2. Serum zinc, copper, selenium, and lead levels in patients with chronic renal failure

Author	Publication year	Patients' age	Zinc	Copper	Lead	Selenium
Tayeb (10)	2009	9-17	14.56±6.09 micromol/ dl	—	—	—
Esfahani (11)	2013	3.64 ± 11.75	0.35 ±0.077 ppm	0.533±0.231 ppm	—	—
Abiri (12)	1994	—	0.806±0.177 ppm	—	—	—
Marjani (13)	2003	50.02±16.08	78.35 ±37.46 microgram/dl	—	89.92±32.54 microgram/dl	—
Mishra (14)	2008	0-10	1.07±0.46 mg/dl	1.56±0.48 mg/dl	—	—
Ari (15)	2011	38 ±8	0.53±0.3 microgram/dl	1.54±0.34 microgram/dl	—	—
Apostolidis (16)	2002	15 ± 54	—	—	—	44±9 nanogram/dl
Guo (17)	2013	6 ± 53	7.7 ± 49.2 microgram/dl	—	—	10.2 ± 46.1 nanogram/dl
Palaneeswari (18)	2013	52.5	—	—	1.67 ± 07.32 microgram/dl	—

such as enzymes needed in transcription and translation of genetic material and cell division (11).

Lower zinc level in CKD patients might happen due to the increased urinary zinc excretion and the decreased intestinal zinc absorption. Hypozincemia is a cause of re-distribution of total body zinc because liver tissue zinc had been increased in autopsy (21).

On the other hand, decrease in zinc and copper serum concentrations happen in ESRD due to the excretion of protein and albumin in urine (2).

In conclusion, close and careful nutritional support in children with CKD, particularly in the early stages of the disease, is necessary.

Acknowledgement

We would like to thank Clinical Research Development Center of Ghaem Hospital for their assistant in this manuscript. This study was supported by a grant from the Vice Chancellor for Research of the Mashhad

University of Medical Sciences for the research project as a medical student thesis with approval number of 910392.

Conflict of Interest

The authors declare no conflict of interest.

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