Silicon toxicity in patients with renal insufficiency and end stage renal disease

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- The current study has been performed on 80 subjects, their ageranged between 17 and 74 years (52.6 + 13.32 years). They included54 males and 26 females.They were divided ·into4 groups:GroupI: 30 patientswith chronicrenal failureon regularhemodialysis.GroupII: 10patientswith chronicrenal failureon conservativemeasuresGroup ill: 20 patients with renal impairment.Group IV: 20 normal healthy control- Skin affection was positive in 30% of patients in group I, 50% ofpatients in group II, and 25% of patients in group ill.- Bone pain was positive in 33% of patients in group I, 20% ofpatients in group II, and 35% of patients in group ill.- Muscle wasting was positive in 10% of patients in group I, 30% ofpatients in group II, and there was not any patient in group ill.- Joint affection was positive in 43.3% of patients in group I, 40% ofpatients in group II, and 35% of patients in group ill.- Joint affection was significantly correlated to the serum siliconlevel in group I (r= 0.55), II (r=O.75),and ill (r=O.56).- The plasma silicon level in group I was (2588.7 + 2114.1~gIL), ingroup II (2413.2 + 1951.8~gIL), in group ill (1457.6 + 1694.3~gIL),in group IV (540.8+ 559.4 ug IL). It was significantly elevated ingroups I, II, and ill than in group IV.- Plasma silicon level found to be normal (i.e. less than or equal themean silicon level in group IV) in 10 patients of the three groups.- The plasma aluminum level in group I was (22.67 + 9.7~gIL), ingroup II (18.8 + 3.5~gIL), in group ill (21.2 + 1O.5~), in groupIV (13.7 + 4.1Ilg/L). It was significantly elevated in groups I, II, andill than in group IV._ In group I hemoglobin was (10.57 + 2.11 gm/dl) and hematocrit(33.06 + 4.8 vol%). In group n hemoglobin (9.08 + 2.21 gm/dl),hematocrit (29.9 + 6.6 vol%), in group ill hemoglobin (10.25 + 2.16gm/dl), and hematocrit (31.35 + 7.47 vol%)._ In group I, the serum calcium level was (9.37 + 1.3 mg/dl)corrected calcium was (9.57 + 1.37mg/dl), pho!phorus was (7.16 +1.9 mg/dl), alkaline phosphatase was (560.8 + 908.3 u/dl), S.G.O.Twas (17.4 + 9.6 u/dl), S.G.P.T was (21.4 + 17 u/dl), serum albuminwas (3.74 +0.35 gm%)._ In group n, the serum calcium level was (8.34 + 1.56 mg/dl),corrected calcium was (8.41 + 1.81 mg/dl), phosphorus was (7.19 +3.7 mg/dl), alkaline phosphatase was (144.9 + 129.1 u/dl), S.G.O.Twas (21.2 + 12.7 u/dl), S.G.P.T was (15.5 + 7.2 u/dl), serum albuminwas (3.91 + 0.66 gm%)._ In group ill, The serum calcium level was (8.68 + 1.78 mg/dl),corrected calcium was (9.1 + 1.77 mg/dl), phosphorus was (5.39 +1.06 mg/dl), alkaline phosphatase was (132.6 + 154.5 u/dl), S.G.O.Twas (30.8 + 22.4 u/dl), S.G.P.T was (28.7 + 38.3 u/dl), serumalbumin was (3.48 +0.87 gm%)._Parathyroid hormone was (110.76 + 184.06 Pg/ml) in group I, andwas (235.1

+ 386.2 Pg/ml) in group ll, while it was (354.75 + 347.57Pg/ml) in group ill._ There serum parathyroid hormone level was significantlysuppressed in patients with high silicon (55.3 + 23.29 Pg/ml) thanthose with normal silicon levels (226.67 + 201.8 Pg/ml) in group I(p