FERROKINETICS STUDIES IN PATIENTS WITH GEOPHAGIA, GROWTH PETARDATION, HYPOGONADISM, HEPATOSPLENOMEGALY IRON DEFICIENCY ANEMIA AND ZINC DEFICIENCY

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SUMMARY: Ferrokinetic investigations were performed in ten patients with prolonged Geophagia. Plasma Iron Clearance (T 1/2) was increased. Plasma Iron Transport Rate (PIT) was decreased in five; Red Cell Iron Utilization (RCU %) was decreased in six, normal in three; Erythrocyte Iron Turnover Rate (EIT) was found to be decreased in five, normal in one and increased in three cases. Erythrocyte Survival Rate (RCS) was found to be shortened in all cases except one.

The radioiron distribution obtained by surface counting over sacrum (Marrow), spleen and liver was performed in three cases. The spleen showed that red cell sequestration increased in two cases. Ferrokinetic data indicated that erytropoesis is disturbed in children with geophagia.

Key Words: Ferrokinetics, Geophagia, Zinc Deficiency.

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Table 1: Clinical and Laboratory Findings in Geophagia Cases.

				Centimeters Below Costal Margin									
Cases	Sex	Age Years	Height (cm) Percentile	Spleen	Liver	Delayed Puberty	Hb g/dl	Serum Iron	TIBC % ug	TS % ug	Plasma Zn	RBC Zn ug/ml %	Hair Zn ug/gr ug
1	F	15	135 (< 3rd)	2.5	7	+	4.7	54	381	14.1	44	10.8	83.0
2	F	15	150 (< 3rd)	N	N	+	7.2	43	493	8.7	72	8.8	158.4
3	F	27	156 (< 25th)	12	8	-	9.0	20	840	2.3	68	9.8	89.3
4	M	18	153 (< 3rd)	22	N	+	5.4	16	514	3	60	12.2	-
5	F	19	163 (< 3rd)	N	N	-	6.0	44	539	7.4	-	-	148.0
6	F	7	118(< 50th)	2	3	-	7.6	16	421	3.8	44	9.2	157.0
7	F	12	116 (< 3rd)	8	10	+	3.5	28	388	7.8	64	14.2	230.5
8	F	13	138 (< 3rd)	1.5	N	+	6.6	16	541	3	72	8.4	-
9	M	11	130 (< 3rd)	8	6	-	2.7	20	860	2.3	56	11.6	126.6
10	F	16	151 (< 25th)	11	N	+	5.3	28	358	8	60	13.4	147.2
	n: 10										9	9	8
	x: 15.3										60	10.93	142.5
	SD: 5.4										10.6	2.06	46.11
	Controls										5	5	5
											114.95+	18.44	196.72+
											22.53	4.60	48.61
											(5)	(5)	(5)
											P < 0.01	P < 0.01	P < 0.05

F: Female M: Male N: Normal Hb: Hemoglobin TIBC: Total Iron Binding Capacity TS: Transferrin saturation

Table 2: Results of Ferrokinetic Studies in Geophagia Syndrome.

Measurement	Normal					Cases				
	1	2	3	4	5	6	7	8	9	10
T 1/2 (minutes) 60 - 120	30	50	30	20	25	45	25	20	20	15
PIT (Mg / day) 27 - 40	9.9	53	7.0	36	52	12.4	29.7	3.5	16.7	51
RCU (%) 80 - 90	45	-	93	92	74	90	69	45	58	62
EIT (mg / day / dl) 22.5	3.9	-	6.7	33	37	11.1	20.4	1.2	9.6	31
EST (day) 98	58	-	77	20	40	43.4	55	-	74	56

T 1/2: Plasma Iron Clearance PIT: Plasma Iron Transport RBCU: Red Cell Iron Utilization EIT: Erythrocyte Iron Turnover EST: Erythrocyte Survival Time

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