

AN OBSERVATIONAL STUDY TO EVALUATE CBC CHANGES DUE TO GEOPHAGIA IN CHILDREN AGE GROUP 1 – 12 YEARS

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ABSTRACT

‘AYURVEDA’ is the science of life. The fundamental concept of Ayurveda is to maintain the health. Children’s have tendency to eat non-food substances. Mineral deficiencies, such as iron may serve as causative factors for children to develop cravings for earth like substances. Geophagia, a subcategory of pica. It is more at infancy when hand to mouth activity is high. The oldest evidence of Geophagia practiced by human come from Ayurveda ‘CHARAK SAMHITA’. Where it has been identified as one of the causes of Anemia (Pandu) the condition was term as ‘MRUDBHAKSHANJANYA PANDU. CBC used routinely to screen or diagnose and to monitor a variety of conditions. This study helped weather the Geophagia causes any changes in CBC parameters or Not.

KEYWORDS: Vayovibhajan, Geophagia, Mrudbhakshanjanya Pandu.

INTRODUCTION:

‘AYURVEDA’ is the science of life. The fundamental concept of Ayurveda is to maintain the health.

In children’s Hand to mouth co-ordination develops at 6 months as the ability to chew develops, the child can take a biscuit to mouth and chew.

Children’s have tendency to eat non-food substances. Mineral deficiencies, such as iron may serve as causative factors for children to develop cravings for earth like substances.

Geophagia, a subcategory of pica, means deliberate consumption of soil, clay and dirt is reported to most common habit in children. It is more at infancy when hand to mouth activity is high. Geophagia is reported some as a physiological response to a deficiency like iron and calcium in the body or some kids eating dirt.

The oldest evidence of Geophagia practiced by human come from Ayurveda 'CHARAK SAMHITA'. Where it has been identified as one of the causes of Anemia (Pandu) the condition was term as 'MRUDBHAKSHANJANYA PANDU'.

The CBC is usually carried out as a part of a common pathological test as advised by a doctor. It is used routinely to screen or diagnose and to monitor a variety of conditions. According to National Family Health Survey (NFHS) III data, Iron deficiency is the commonest nutritional deficiency worldwide and its prevalence is highest in India

This study helped weather the Geophagia causes any changes in CBC parameters or Not.

AIM

To observe CBC changes due to geophagia in children age group 1-12 year.

OBJECTIVES

PRIMARY OBJECTIVE

1) To compare changes in CBC parameters of children having habit of Geophagia.

SECONDARY OBJECTIVES

1) Study the concept of geophagia for modern literature w.s.r mrudbhakshanjanya pandu.

MATERIAL AND METHOD

MATERIAL

50 Patient (with having Geophagia) is selected randomly from O.P.D of department of kaumarbhritya tantra from concern institute selected for present study

a) INCLUSION CRITERIA

- 1) Children's with history of geophagia >1 month and Children's having no history of geophagia.
- 2) Age group 1 -12 years patient will be taken.
- 3) Irrespective of sex, socioeconomic condition and religion
- 4) Children's whose parents ready to give consent for repeat sampling.

b) EXCLUSION CRITERIA:

- 1) children's having HB <6 gm./dl
- 2) Children having any congenital & hereditary disease.
- 3) Children having any life-threatening disease and patients having any other systemic illness.
- 4) Patients with long term medications without serious illness e.g. Calcium, multivitamin, etc. supplements.

TECHNIQUES:**A) QUESTIONNAIRE:**

- 1) Name
- 2) Age
- 3) Gender
- 4) Do you eat soil / Clay: Yes / No
- 5) If yes How often: 1 / week 1 / day taste
- 6) If yes from how Long: > 1 Month 6 months >1 year

B) LAB INVESTIGATION

CBC (Stat sample and repeat sample After 1 month), Peripheral Blood Smear

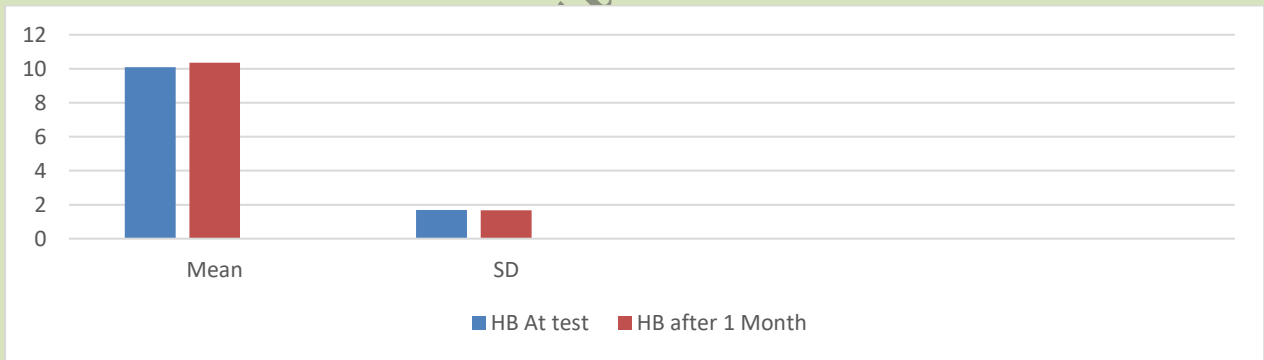
OBSERVATIONS:

Geophagia significance: Individuals those practicing geophagia take repeat sample of CBC after 1 months. After all reports calculate significance of Geophagia

1) Heamoglobin:

Parameter	Geophagia Group (Stat sample)	Geophagia Group (Repeat sample after 1 month)	Difference
Mean	10.098	10.362	-0.2640
# of Point	50	50	50
Std deviation	1.687	1.667	0.4393
Std error	0.2385	0.2357	0.06212
Minimum	7.900	8.000	-1.400
Maximum	14.000	14.200	1.000
Median	9.550	9.950	-0.2000
Lower 95% CI	9.618	9.888	-0.3890
Upper 95% CI	10.578	10.836	-0.1390

It means, Continuous geophagia may lead to changes in HB.

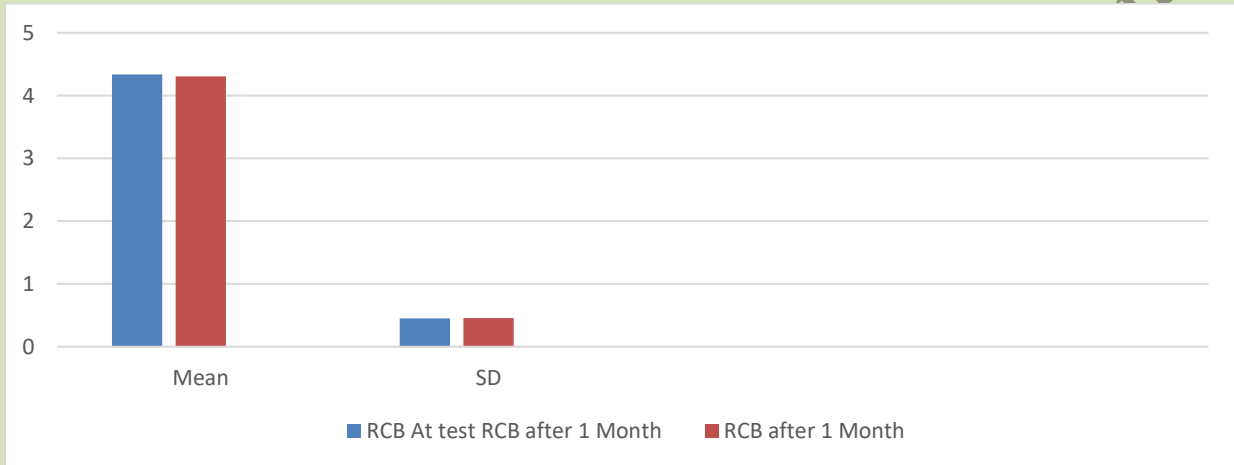


2) Red Blood Cells:

Parameter	Geophagia Group (Stat sample)	Geophagia Group (Repeat sample after 1 month)	Difference
Mean	4.336	4.308	0.02800
# of Points	50	50	50
Std deviation	0.4512	0.4557	0.4096
Std error	0.06381	0.06445	0.05793

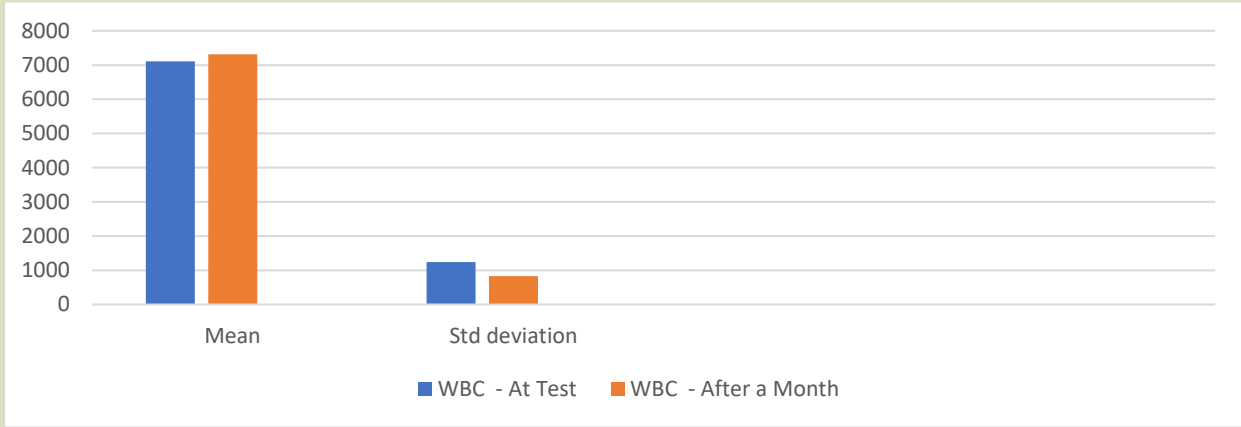
Minimum	3.800	3.600	-1.100
Maximum	5.300	5.400	0.9000
Median	4.200	4.200	0.1000
Lower 95% CI	4.208	4.178	-0.08852
Upper 95% CI	4.464	4.438	0.1445

It means, continue Geophagia doesn't leads to changes in RBC within 1-month Period



3) White blood cells:

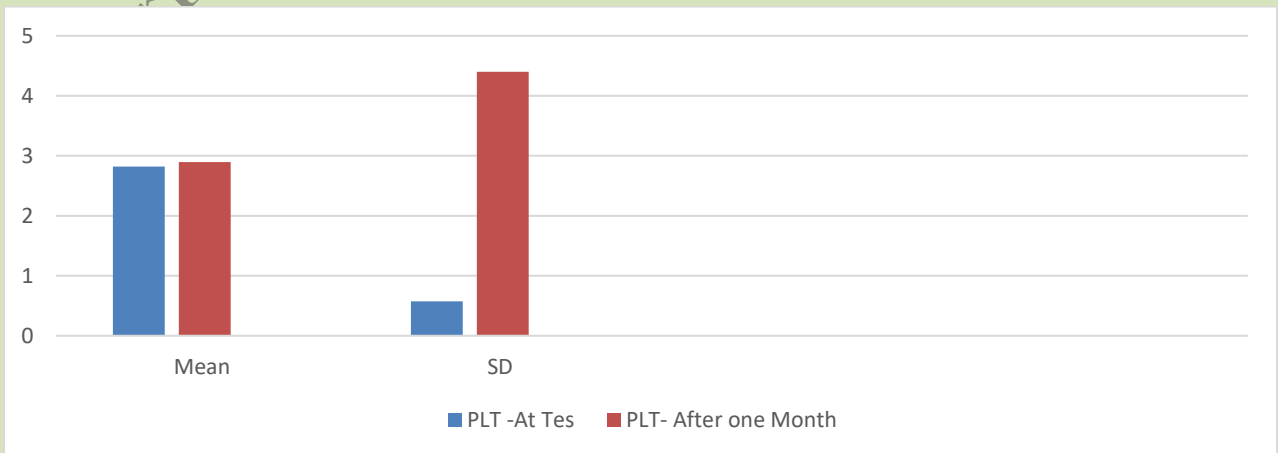
Parameter	Geophagia Group (Stat sample)	Geophagia Group (Repeat sample after 1 month)	Difference
Mean	7112.0	7314.0	-202.00
# of Points	50	50	50
Std deviation	1237.9	827.83	876.33
Std error	175.07	117.07	123.93
Minimum	4200.0	5500.0	-2000.0
Maximum	9900.0	9800.0	2600.0
Median	7000.0	7300.0	-350.00
Lower 95% CI	6759.8	7078.5	-451.30
Upper 95% CI	7464.2	7549.5	47.295



4) Platelet:

Parameter	Geophagia Group (Stat sample)	Geophagia Group (Repeat sample after 1 month)	Difference
Mean	2.821	2.896	-0.07520
# of points	50	50	50
Std deviation	0.5718	0.3681	0.3621
Std error	0.08087	0.05206	0.05121
Minimum	1.720	2.100	-0.6000
Maximum	4.200	3.900	1.100
Median:	2.900	2.900	-0.2000
Lower 95% CI	2.658	2.791	-0.1782
Upper 95% CI	2.983	3.001	0.02781

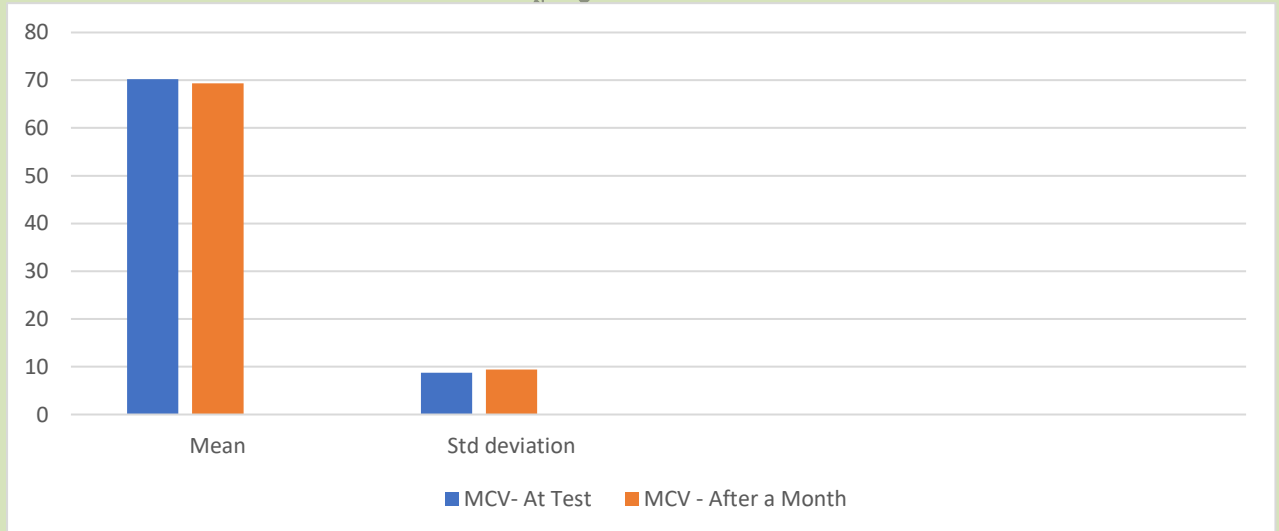
It means, continue geophagia doesn't changes in platelets within 1 Month Period.



5) Mean corpuscular volume

Parameter	Geophagia Group (Stat sample)	Geophagia Group (Repeat sample after 1 month)	Difference
Mean	70.200	79.320	-9.120
# of Points	50	50	50
Std deviation	8.718	69.712	70.653
Std error	1.233	9.859	9.992
Minimum	58.000	58.000	-498.00
Maximum	88.000	58.00	10.000
Median	68.000	66.000	2.000
Lower 95% CI	67.720	59.488	-29.219
Upper 95% CI	72.680	99.152	10.979

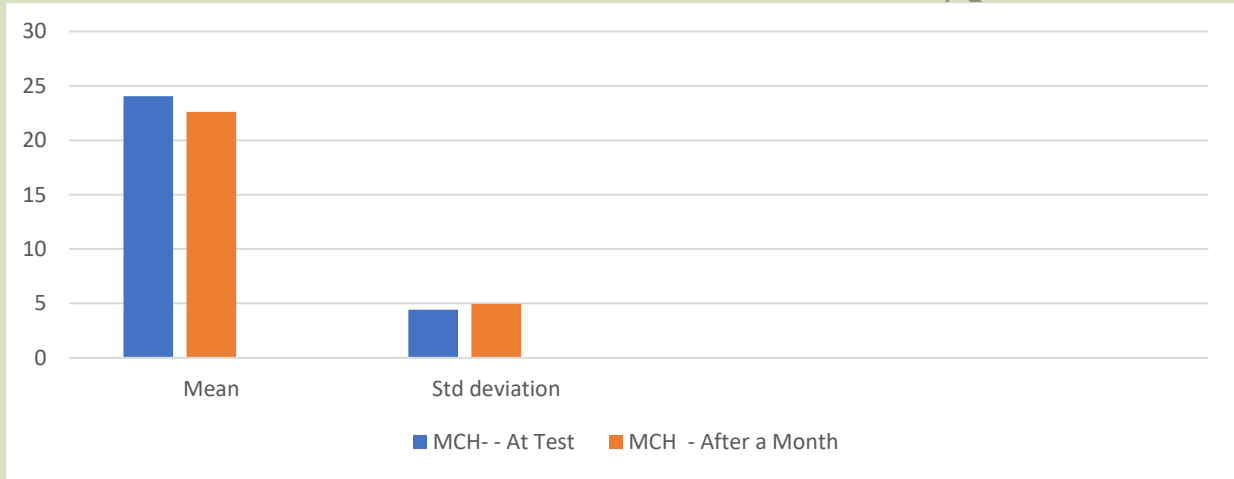
It means, continue geophagia doesn't changes in MCV within 1 Month Period



6) Mean Corpuscular Heamoglobin:

Parameter	Geophagia Group (Stat sample)	Geophagia Group (Repeat sample after 1 month)	Difference
Mean	24.060	22.600	1.460

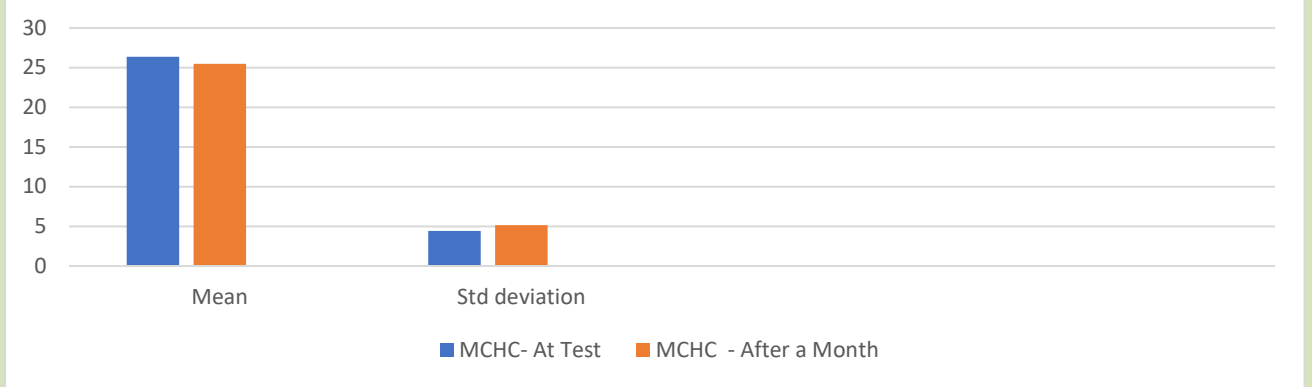
# of Points	50	50	50
Std deviation	4.437	4.953	1.971
Std error	0.6275	0.7004	0.2788
Minimum	18.000	18.000	-3.000
Maximum	32.000	32.000	6.000
Median	23.000	20.000	2.000
Lower 95% CI	22.798	21.191	0.8992
Upper 95% CI	25.322	24.009	2.021



7) Mean Corpuscular Heamoglobin Concentration: (MCHC)

Parameter	Geophagia Group (Stat sample)	Geophagia Group (Repeat sample after 1 month)	Difference
Mean	26.360	25.480	0.8800
# of Points	50	50	50
Ste deviation	4.407	5.140	2.520
Std error	0.6232	0.7269	0.3564
Minimum	20.000	20.000	-4.000
Maximum	34.000	34.000	8.000
Median	25.000	24.000	1.500
Lower 95% CI	25.106	24.018	0.1630
Upper 95% CI	27.614	26.942	1.597

It means, continue Geophagia lead to changes in MCHC which are declining of MCHC within 1 month period.



DISCUSSION:

As per the study proceeds collected data shows significant findings. Every age Group is susceptible for the Pandu Roga but children are more affected due to intake of Iron deficient diet or less Iron content in diet. According to all over assessment Geophagia group included 50 children's 35 individuals shows low hemoglobin and The Low mean value of the MCV, MCH, MCHC in test group that indicated there is tendency towards microcytic hypochromic Anemia Which is may shows Iron Deficiency Anemia.

CONCLUSION

It is clear from the results that the children's in geophagia group more children may suffer from Iron deficiency anemia on the basis of CBC Interpretation. In this study the effect of Geophagia on blood parameter indicated effect of soil eating on Iron Status.

SCOPE FOR RESEARCH

- The question needs to be answered on whether the geophagia causes the Iron deficiency or the iron deficiency causes Geophagia.
- The present study was conducted with limited time, limited facilities and limited number of patients. A study of larger group of patients may help to find more information.

- Very few literatures exist on the association between geophagia and mineral deficiency like calcium, phosphate, magnesium.

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