CODEN [USA]: IAJPBB ISSN: 2349-7750

INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES
http://doi.org/10.5281/zenodo.3935993

Available online at: http://www.iajps.com *Research Article*

CORRELATION OF HOOKWORM INFECTION & MEAN CORPUSCULAR HAEMOGLOBIN CONCENTRATION

[1]Amna Shabbir, [2]Farzeen Fazal, [3]Samra Maqbool

[1]Ex house officer Bahawal Victoria Hospital Bahawalpur,
Email: amna.doctor700@gmail.com

[2]Doctor in BHU Kamalia, Email: farzeenzenia78@yahoo.com

[3]Doctor in BHU Burewala , Email: samramaqbool313@gmail.com

Article Received: May 2020 **Accepted:** June2020 **Published:** July 2020

Abstract:

Objective: *To determine frequency of hookworm infected patients and its relation to mean corpuscular hemoglobin concentration*

Design & duration: *It is a cross sectional study of observational type completed in six months duration.*

Setting: *Study was conducted in peripheral rural areas of city Bahawalpur.*

Patients & methods: *People of rural areas in periphery of city Bahawalpur were included in the study using non-probability randomized sampling technique. Blood and stool samples were taken. Blood sample were tested for mean corpuscular hemoglobin concentration, and stool samples were tested for hook worm ova to diagnose hook worm infection. Consent was taken from all cases in study group. People irrespective of gender and age were included in this study. Tests were carried out in pathology lab of Bahawal Victoria hospital Bahawalpur. A Performa was designed in which all relevant data was documented like age, gender, hook worm infection and MCHC values as determined from tests.*

Results: *Total 800 cases were studied including 214() female and 586() male cases. There were 25.4% cases having hook worm infection and 74.6% were not having infection. There were 10.7% cases having hookworm ova <4000 in stool sample, 6.7% cases were containing ova 4001-8000, 4.1% cases containing 8001-12000 ova and 3.7% cases were containing 12001-16000 ova in stool sample.*

Conclusion: *Hookworm infection is much common in people of peripheral areas associated with low mean corpuscular hemoglobin concentration.*

Key words: *Hookworm infection, MCHC, Anemia*

Corresponding author:

Amna Shabbir,

Ex house officer Bahawal Victoria Hospital Bahawalpur,
Email: amna.doctor700@gmail.com

QR code

Please cite this article in press Amna Shabbir et al, ***Correlation Of Hookworm Infection & Mean Corpuscular Hemoglobin Concentration.,*** *Indo Am. J. P. Sci, 2020; 07(07).*

INTRODUCTION:

Hookworm infection is a common infection among all parasitic infections.[1] It is mostly prevalent in moist, hot peripheral rural areas associated.[2,3] It is associated with decrease in mean corpuscular hemoglobin concentration and causing anemia in patients.[4-6] Hookworm exist in intestines and its ova are excreted through feces. Detection of ova in stool sample confirms its infection.[7] This infection is common in areas near to river due to humid moist environment, suitable for this infection. This infection is much common in Northern India, Southern Europe, Northern China and Pakistan.[8] There are evidence that hookworm infection can be imported from tropical area to temperate zone.[9] In some areas mixed parasitic infections are present. Many recent studies have confirmed hookworm infection is much common in Pakistani rural areas. WHO has emphasized on more research work should be done on prevalence of this infection in Pakistan.[10]

PATIENTS & METHODS:

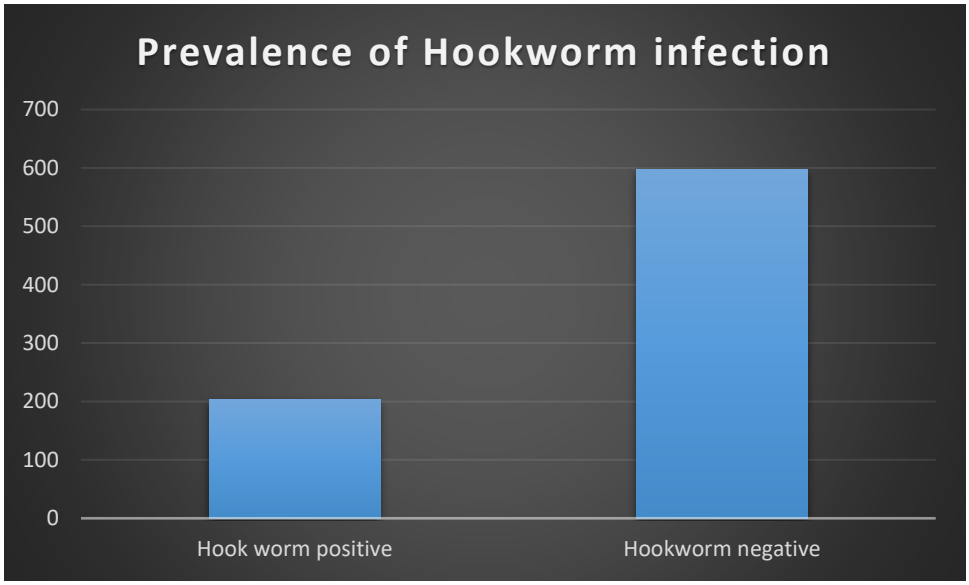
This is a cross sectional study of observational type conducted in peripheral underdeveloped rural areas of city Bahawalpur. Study was started in January and completed after six months duration in June 2020. People of rural areas in periphery of city Bahawalpur were included in the study using non-probability randomized sampling technique. Blood and stool samples were taken. Blood sample were tested for mean corpuscular hemoglobin concentration, and stool samples were tested for hook worm ova to diagnose hook worm infection. Consent was taken from all cases in study group. People irrespective of gender and age were included in this study. Tests were carried out in pathology lab of Bahawal Victoria hospital Bahawalpur. A performa was designed in which all relevant data was documented like age, gender, hook worm infection and MCHC values as determined from tests. SPSS software version 20 and Microsoft office word version 2017 were used. Data was analyzed and results were calculated in the form of percentage, frequency, mean and standard deviation.

RESULTS:

Total 800 cases were studied including 214() female and 586() male cases. There were 25.4% cases having hook worm infection and 74.6% were not having infection. There were 10.7% cases having hookworm ova <4000 in stool sample, 6.7% cases were containing ova 4001-8000, 4.1% cases containing 8001-12000 ova and 3.7% cases were containing 12001-16000 ova in stool sample. Mean age of cases was 32.4±7.5 years. There were 255(31.8%) cases between 10-20 years, 204(25.5%) between 21-30 years, 143(17.8%) between 31-40 years, 108(13.5%) between 41-50 years and 90(11.3%) cases were >50 years of age.

Number of ova in stool sample and its relation with MCHC value (n=203)

Number of ova /gram faeces	Number of subjects (n=203)	Mean MCHC value	P-value	r
<3000	76 (37.4%)	28.43	<0.05	-0.83
3001-6000	68 (33.4%)	26.65		
6001-9000	30 (14.8%)	24.11		
9001-12000	21 (10.3%)	19.32		
12001-15000	8 (3.9%)	16.72		



DISCUSSION:

This study has shown correlation between hookworm infection and MCHC.[11] This study is similar to previous studies showing relation between hookworm infection and MCHC, contradicting other studies showing no relation between infection and MCHC.[12-14] Hookworm infection is a common infection among all parasitic infections. It is mostly prevalent in moist, hot peripheral rural areas associated.[15-17] It is associated with decrease in mean corpuscular hemoglobin concentration and causing anemia in patients. Hookworm exist in intestines and its ova are excreted through feces.[18] Detection of ova in stool sample confirms its infection. This infection is common in areas near to river due to humid moist environment, suitable for this infection.[19-21] This infection is much common in Northern India, Southern Europe, Northern China and Pakistan. This is a cross sectional study of observational type conducted in peripheral underdeveloped rural areas of city Bahawalpur.[22-24] Study was started in January and completed after six months duration in June 2020. People of rural areas in periphery of city Bahawalpur were included in the study using non-probability randomized sampling technique. Blood and stool samples were taken. Blood sample were tested for mean corpuscular hemoglobin concentration, and stool samples were tested for hook worm ova to diagnose hook worm infection. Consent was taken from all cases in study group. Total 800 cases were studied including 214() female and 586() male cases. There were 25.4% cases having hook worm infection and 74.6% were not having infection. There were 10.7% cases having hookworm ova <4000 in stool sample, 6.7% cases were containing ova 4001-8000, 4.1% cases containing 8001-12000 ova and 3.7% cases were containing 12001-16000 ova in stool sample. In some studies severity of infection was not measured as number of ova in stool sample or methods used were not accurate as studies done by Kennedy, Old Meadow, Foy and Kondi.[25]

REFERENCES:

1. Massud, J. Arfan, F H and Keyvan, S; Prevalence of intestinal helminthc infections in Kazistan, South west Iran. Amr.Jr.trop Med. Hyg:29(3): 389-392.1980.
2. Beaver, P.C: Jung, R.C: and Cupp. E.W; Clinical parasitology, 9th.E.D. Lea and Fabriger, Philadelphina 269-287.1984.
3. W.H.O; Intestinal protozoan and helminthic infections, Report of W .H.O. scientific group. Technical reports series. 666:-11-152.1981.
4. Doby, J.M; Importation of Tropical parasites to temperate regions. 3rd European Muliticolloquim of Parasitology, Workshop No.15, Parasitol; 82: 196-203.1981.
5. Oyerinde, J.P.O; Human Ancylostoma infections in Nigeria. Ann. Trop.Med. Parasitol; 225(4); 363-367.
6. Ahmed, N; Studies on Ancylostoma in west Pakistan. Pak. Jr. Med.Res. 1;35-52. 1959.
7. Ahmed, N; and Shah, K.S; Reports on Hookworm infection. Survey of organized communities in Lahore corporation. Pak.Jr.Med.Res. I : 35-52.1959.
8. Ansari, M .A.R. Sapru, Z, A:. Naru, N.A; A survey of intenstinal parasites in village Sahowary, Incidence in males. Pak. Jr.Hlth; 15:1-24, 1965.
9. Islam, S,M, and Haleem, N.A; A comparison of intestinal parasitism in Karachi and other parts in Pakistan. Pak.Jr.Hlth; 23: 11-18: (1), 91-104. 1971.
10. Naru, N.A; Intestinal parastic infections in Pakistan. Pak. Jr.Hlth; 23: 11-18, 1973.
11. Ansari, M.A.R; and Naru, N.A; Some incoming intestinal parasites of Lahore. Pak.Jr.Med.Res.6 (2); 138-154, 1968.

12. Ansari, M .A.R; Naru, N.A; and Chaudhry, N .A; A preliminary report on the intestinal parasites of Lulliani, District Kasur. Pak.Jr.Hlth. 18(2):57-72, 1968.
13. Bano, L. and Yasmen B; Observations on incidence of infection with intestinal parasites in school children of Peshawar. Pak.Jr.Med.Res. 19(4):66-67.1981.
15. Pal, R.A, and Rana, S.I; Incidence of intestinal helminthic parasites of man in twin cites of Rawalpindi Islamabad. Jr.Pak.Med.Assoc: 33:33. 1983.
16. Wittman, K.S; and John, C.T; Medical laboratory skills. Gregg Davidson, MacGraw hill Book Company. Newyork. 106-132.1977.
17. Crewe, W; A guide to human parasitology, 10th Ed. English Language book society, London: 184-176.1985.
18. Rahphael, S.S; Lynch's medical laboratory technology-4th Ed, W .B. Saunders Co.Philadelphia, U.S.A: 272-699.1983.
19. Weinkov, C, and McDowell, D .R; Porphyrins, Heamoglobin and related compounds; in Gowenlock, A.H. McMurray, J.R and McLauchlan, D.M, Eds. Varlys paractical clinical biochemistry 6th Ed. Heinman Medical Books, 632-669.1988.
20. Roche, M and Layrisse, M; The nature and causes of hookworm anaemia. Amr.Jr. Trop.Med. and Hyg; 15:1031-1102. 1966.
21. Kennedy, A.F; Some aspects of hookworm carrier state in African mine worker. Central medical Jr.:;2:104-106.1956.
22. Old meadow, D.J; The relationship of anaemia in pregnancy in Fiji to ascorbic acid deficiency Med. Jr. Australia.2:821-824.1956.
23. Foy,H and Kondi, A; Report on incidence, aetiology, treatment and prophylaxis of the anaemias in the sychelles. A study of iron deficiency anaemia and ancylostomiasis, in the tropics. Am. Jr.Trop.Med.Parasitol; 55:2545.1961.
24. Dick, J.W .A and McCarthy.D; The absence of anaemia in hookworm infection in East African personnel: East African Medical Journal. 23:19-22,1964.
25. Stott, G; Hookworm infection and anemia in Mauritius. Trans.Roy.Soc.Trop.Med. and Hyg.55:20