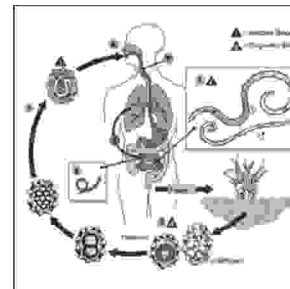ORIGINAL   **PROF-954**

HOOKWORM INFECTION;

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ABSTRACT... The study "Correlation of hookworm infection and Mean corpuscular haemoglonbin concentration" was carried out in rural population of Lulliani (Mustafaabad), located in District Kasur. The sampling method was stratified random sampling. Sample size was calculated which was 1010 and the subjects were selected from the above locality. Among the sampled population 253 were found hookworm positive. Stool and blood samples of hookworm positive cases were taken who were 253 in number, and calculation of MCHC level and hookworm infection burden in terms of No. of ova per gm of faeces was made. Haemoglobin level was estimated by cyanmethaemoglobin method and packed cell volume by microhaematocrit method. Quantitative estimation of hookworm ova in stool was carried out by stoll's modified egg counting technique. Results of the study showed a significant relationship between M.C.H.C. level and No of hookworm ova per gram of faeces (r= --0.908), a strong negative correlation.

INTRODUCTION

Hookworm infection is an important disease. It is prevalent in warm and moist areas. Many studies show that hookworm infection prevails in warm and humid areas of the world[1]. It has also been observed that hookworm infection is common in rural areas near rivers[2].

Ancylostoma duodenale is more common in Southern Europe, Northern India, Northern China, and Pakistan[3]. Necator americanus is prevalent in America, Equatorial Africa, South and Southeastern, Asia, Polynesia and Australia[4]. There is also evidence that hookworm infection can be imported in a Temperate Zone from tropical area[5]. Mixed infections are present in some areas[6]. Many studies conducted in Pakistan show that hookworm infection is prevalent in Pakistan especially in rural areas[7-15].

Keeping in view that above circumstances it has been emphasized by WHO[4], that more research should be done on human hookworm infection and on details of blood loss.

AIMS AND OBJECTIVES

The present study has got two important objectives:

1.   To find out prevalence, rate and intensity of hookworm infection.
2.   To find out whether a significant correlation exists between hookworm infection and M.C.H.C.

MATERIALS AND METHODS

1010 male adult subjects were selected by stratified

random sampling from rural population of Lulliani. After proper briefing and training clean labeled bottle were distributed to the subjects for collection of stool samples. Blood samples were taken from 253 hookworm positive cases. 253 hookworm positive cases were subjected to detailed investigations. Blood samples were taken by sterile technique[16]. Quantitative estimation of hookworm ova in faeces was performed by stoll's modified egg counting technique[17]. Haemoglobin was estimated by Cyanmethaemoglobin method[18-19]. Packed cell volume (PCV) was determined by micro-haematorit method.

Mean corpuscular haemoglobin concentration was determined by the formula,

M.C.H.C= Haemoglobin in gram per 100 ml of blood X100 Volume of packed cells in ml per 100 ml of Blood.

In pie diagram intensity wise distribution of hookworm infection positive cases has been shown.

RESULTS

The prevalence rate of hookworm infection among 1010 subjects under study is given below (Table I).

Table-I. Prevalence of hookworm infection in sampled population n = 1010		
	No. Of subjects	% Age
Hookworm Positive	253	25.04
Hookworm Negative	757	74.96
Total	1010	100

In pie diagram intensity wise distribution of hookworm ova in hookworm positive cases has been shown.

RELATIONSHIP OF HOOKWORM INFECTION AND M.C.H.C

In Table No.II intensity of hookworm infection in terms of No of ova per gram of faeces has been shown versus mean M.C.H.C values.
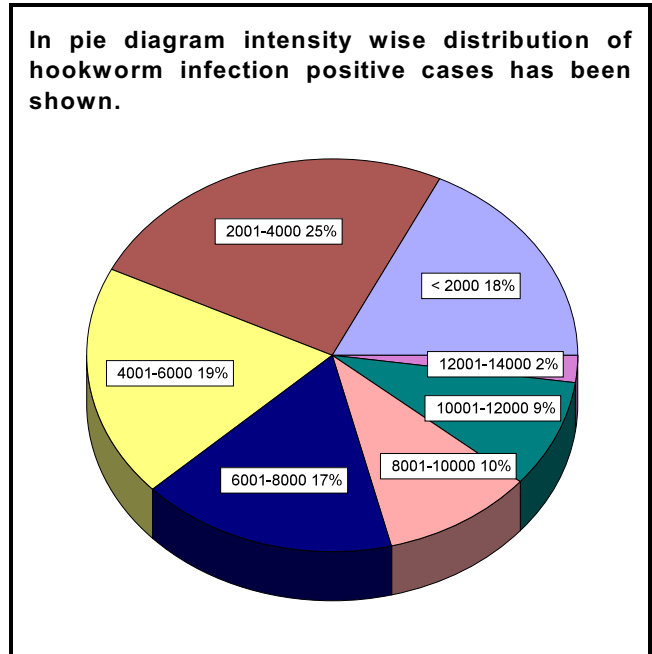
Table-II.		
No. of Ova per gram of faeces	No. of Subjects	Mean M.C.H.C Values
< 2000	46	29.88
2001-4000	63	28.51
4001-6000	47	27.09
6001-8000	43	24.77
8001-10000	26	21.10
10001-12000	24	17.26
12001-14000	04	15.13
P < 0.05 r = − 0.908		
This relationship is statistically significant		

The Graph depicts that there is a negative relationship between intensity of hookworm infection and M.C.H.C values. The curve shows a sloping trend. It also shows that there is a consistent decrease of M.C.H.C values with increasing intensity of hookworm ova per gram of faeces. It is clear that with increasing intensity of hookworm infection the degree of fall in M.C.H.C values also increases and the difference between two adjacent

values increases. This indicates that heavy infection of hookworm cases decreases the level of M.C.H.C more appreciably.
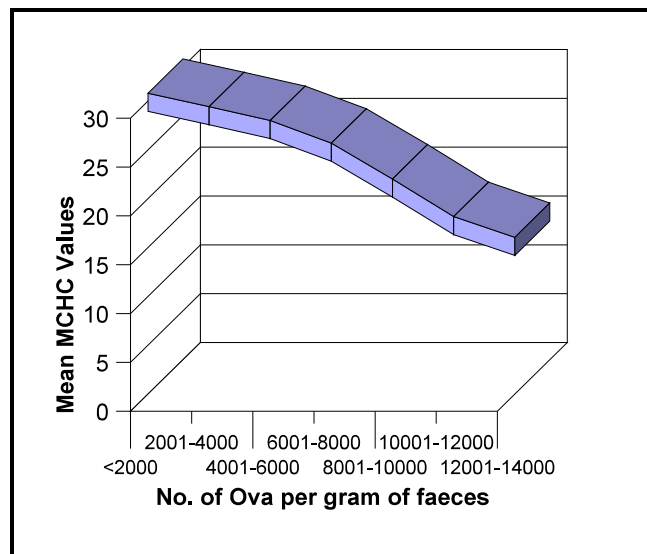
DISCUSSION

This study has shown a strong negative correlation of undoubted significance between hookworm infection and M.C.H.C levels, with a coefficient of correlation of r=--0.908. This study coincides the previous studies in favour of relationship between hookworm infection and M.C.H.C values and on the other hand contradicting the studies, which show no relationship between hookworm infection and M.C.H.C values. The study also finds out various explanations for the shortcomings in the studies, which find no relationship between hookworm infection and M.C.H.C values.

In some studies the sample size was too small (Roche and Layrisse[20]).

In some studies the burden was not measured in terms of No of ova per gram of faeces or the methods used were inaccurate (Kennedy[21], Old Meadow[22], Foy and Kondi[23]).

In some of the studies which did not find any relationship between burden and M.C.H.C there was no heavy infection in the series (Dick and McCarthy[24], and stott[25].

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