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Intestinal Parasitic Infection Among Household Contacts Of Primary Cases, A Comparative Cross – Sectional Study

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ABSTRACT
Intestinal parasitic infection affects 3.5 billion people in the world and mostly affecting the low socio – economic groups. The present study was carried out from 2006 to 2008 on the 451, persons. The collected stool specimens were examined microscopically for the presence of eggs, cysts and trophozoites of intestinal parasites, using direct saline smear method for the confirmation of parasitic positive patients. The objectives of this research works were to estimate the prevalence and determinants of intestinal parasitic infection among family members of known intestinal parasite infected patients. Generally, the prevalence of intestinal parasitic infection in this study was high and contributed by low socioeconomic status and poor environmental and personal hygiene, environmental sanitation, drinking water supply regular medical checkups and treatment should be taken into account to reduce the prevalence of intestinal parasites.

Key Words: - *Intestinal Parasites, Parasitic Infection, Poverty and Nutritional Status.*

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I. Introduction

Intestinal parasites are the group of worm's primaries affecting the gastrointestinal tracts, they broadly contain flatworms (tapeworms and flukes) and roundworms (Ascaris, Pinworms and Hookworms infections) (Kaushik, et. al. 2018). The diagnosis of intestinal parasitic infection usually performed by taking stool samples and applying different laboratory techniques, concentration technique is more valid than the other laboratory techniques (Truant, et. al. 1981). Intestinal parasitic infection affects 3.5 billion people in the world and mostly affecting low socio – economic groups (Saki, et. al. 2017). Soil transmitted helminthus infection (Ascaris lumbricoides, Trichuris trichura and hookworm) alone affects 1.5 billion worldwide (Farrell, et. al. 2018). The urbanization process proceed unhindered possibly with the aggravation of the poorest of the poor living in the pockets of urban area so called slum where environmental sanitation is posing serious health problem in urban community. The same is true for rural population. Parasites have coevolved with humans. Several of them colonize the human body and establish a symbiotic relationship. Other parasites cause severe and lethal diseases. Prevalence of parasitic infection is decreased in highly industrialized countries, largely due to enforced hygienic practices. Globally, one third of the total population is estimated to be infected with intestinal parasites, the majority being people living in tropical and sub – tropical parts of the world (Chan, M. S. et. al. 1997). High prevalence of intestinal parasitic infections and poly parasitism effect the health status of individuals mainly affecting physically and mental developments causing malnutrition, anaemia, stunting, cognitive impairment, lowered educational achievement and interfering with productivity (Guyatt, 2000 and Schlemarian et. al. 2001). Intestinal parasitic infections affected an estimated 3.5 billion people and 450 million are ill and more than 200000 people died annually worldwide (Farooq et. al. 2011 and Muhammad Bunga N. 2020). Intestinal parasitic infections are transmitted directly or indirectly through contaminated food, water, fruits and vegetables (Sharifi – Sarsiabi K. et. al. 2021). They are highly endemic in developing countries due to poor hygiene and sanitation practice and lack of safe and adequate water supply. The majority of persons who belong to low socioeconomic status showed higher prevalence of worm infection. Income level determines living level and can be considered at the time of advocating preventive measurement (Rao and Puri, 1973 and Udani, 1983).

II. Material and Methods

A comparative cross – sectional study design was implemented in the urban and rural area of Meerut District. The data were collected from 2006 to 2008. 451 persons were estimated to be included in this study. A pretested structured questionnaire was used to collect socio – demographic characteristic and risk factors

associated with intestinal parasitic infection. Stool specimens were collected from each study participant using a leak – proof and clean plastic container for parasitological examination. About 2- gm. of fresh stool was collected and examined microscopically. Data were collected using interview technique, and collecting stool samples from each urban and rural house hold contact of intestinal parasite patients. During the Demographic study of persons, the age group, sex, socio-economic and literacy status were included in this study. The Chi – Squared tests were performed to the test for an association between all possible pairs of parasitic infections. The calculated χ^2 value was more than P – value (at 0.05 levels).

III. Results and Discussion

Overall, 451, stool samples were examined by Simple Smear in Saline method in the urban and rural population of Meerut District. The age combination of urban gastrointestinal parasitic positive patients shows that 25/89 (28.0%) patients were found parasitic from 0 - 15 age group, 09/40 (22.5%) from 16 - 25 age group, 05/38 (13.2%) from 26 – 35 age group and only 01/19 (5.3%) from the age above 35 years. Further, sex wise distribution revealed that 20/97 (26.6%) parasitic patients were male and 20/89 (22.8%) females. In rural population shows that 60/135 (44.4%) patients were found parasitic from 0 - 15 age group, 19/70 (27.1%) from 16 - 25 age group, 08/43 (18.6%) from 26 – 35 age group and only 01/17 (5.9%) from the age above 35 years. Further, sex wise distribution revealed that 38/124 (30.6%) parasitic patients were male and 50/141 (35.5%) females. Their economic status shows that 33.8%, 23.4%, 12.2%, and 3.2% positive parasitic patients were in low, medium, high-income and very high-income group respectively in the population of urban area. In rural population shows that 41.9%, 28.2%, 14.3%, and 5.5% parasitic positive patients were in low, medium, high-income and very high-income group respectively. While, the literacy status in urban population shown that 40.0% parasitic positive patients were illiterate, 32.1% at primary level, 26.8% at high school level, 20.8% at intermediate, while the 7.4% parasitic positive patients were at graduate or above level. In rural population the literacy status shows that 42.4% parasitic positive patients were illiterate, 34.4% at primary level, 28.3% at high school level, 21.6% at intermediate, while the 8,3% parasitic positive patients were at graduate or above level. The occupation status in urban population of gastrointestinal parasitic positive patients shows that 41.0% were in labour's family, 33.3% were in agriculture's family, 22.7 were in businessman's family and 5.4% were observed in serviceman's family. at intermediate, while the 8,3% parasitic positive patients were at graduate or above level. In rural population of gastrointestinal infection of parasitic positive patients shows that 43.0% were in labour's family, 34.2% were in agriculture's family, 23.1% in businessman's family and 6.4% observed in serviceman's family. The gastrointestinal parasitic positive infection was found statistically more significant higher in low-income group and due to illiteracy. In the continuation of this study, another study also revealed that the high prevalence of intestinal helminthes shown in the low socio – economic group. (Bhandari, et. al. 1985, Kumar et. al. 2013, Kumar et. al. 2015, Kumar 2018, Kumar, P., 2018, Kumar, P. 2018, and Kumar, P. 2021, Kumar, P and Singh, R. B, 2022). The relationship between socio - economic status and child mortality has been well documented (Faarah, et. al. 1982, D'souza, et. al. 1982, Da Vanza, 1983, Majumdar, et. al. 1993, Kumar, P. 2023, Kumar, P 2023 and Spencer, at. al. 1996).

IV. CONCLUSION

High prevalence of intestinal parasitic infection was observed among household contacts of primary cases. The prevalence of intestinal parasitic diseases appears to be high due to poverty, low literacy status, standards of livings, social norms and customs. This study provides the influence of unhygienic condition of the continuity of human intestinal parasitic infections in rural and urban population. Therefore, constant epidemiological surveillance through biannual routine parasitological tests and treatment of the infected cases along with the improvement of personal hygiene and environmental sanitation are recommended the control the parasitic infection.

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