

EDITORIAL

PARASITIC INFESTATION IN CHILDREN

“Nothing is more important than a child since he or she is the adult of tomorrow. That is why every effort must be made to ensure his/her survival. For each new disease, children are at the greatest risk, particularly if they are under five years of age(1)”.

Children represent a special group of the human race that may be used to study a number of diseases among them parasites. They are special in that it is possible to follow them up for manifestations of congenital or acquired disorders, which may be associated with parasitic, viral, bacterial and fungal infections.

Why are children special? Because they are susceptible and exposed to infections in addition to having a low or poorly developed immune defense mechanism compared to adults. Exposure to infection plays a major role in the transmission of diseases and for this to be successful, availability of the pathogen is essential. Unfortunately for tropical developing countries, this is not a problem especially in areas where hygienic standards are low.

In Kenya, as in many other African countries, intestinal helminths constitute a major public health problem. Prevalences are high in both urban /suburban areas and in rural villages where they are accompanied by malnutrition. In addition, multiple infections occur widely in up to 50% of children of school going age (2,3). It has been observed in epidemiological studies that geographical and ecological factors contribute to the distribution of these infections. As a result, a close relationship exists between the environment and the parasite where a high prevalence of helminthiasis reflects a low standard of living and sanitation. Together with this, haphazard urbanisation accentuates infection among the urban poor, especially in pre-school and school-going children. Other factors known to influence this spread include human waste contamination of the environment (children contributing up to 75% of the egg output), a suitable climate to infective pathogens and the extent of human contact with these pathogens.

An example of a disease where children have been known to play a major role in transmission is urinary schistosomiasis. In this disease, the prevalence and intensity in children of school- going age provides good information about its endemicity in a given area. Children in such areas swim in contaminated water either in slow moving rivers, dams, and ponds or along lake shores. While swimming, they are unlikely to observe certain standard hygienic practices such as not defaecating or urinating in the same water. Because of their ignorance, they will relieve themselves at the nearest disposal point regardless of whether this may result in disease transmission or not. Many of them may have no simple knowledge of how these diseases are transmitted and, therefore, will do it unknowingly. To be able to measure the level of endemicity,

it may, therefore, be important to do a survey in school children in suspected areas. Such studies have frequently been carried out in schools along the coastal region of this country and many others (4,5). In some of these studies, the prevalence of schistosomiasis and other intestinal worms has ranged between 75-100% (5,6). In villages where these children come from, haematuria in adolescent boys is considered to be an indication of successful transition from boyhood to adulthood just as menarche in girls is a transition to womanhood. Haematuria is, therefore, seen to be a positive developmental sign and not a symptom of disease. Visits to primary schools in villages where this is a normal belief reveal prevalences of haematuria of up to 100% among teenagers who see nothing wrong in bloody urine (personal observation). These observations always call for health education among the affected communities.

Apart from schistosomiasis, other intestinal parasites have also been known to occur more in pre-school and school children. Ascariasis and trichiuriasis, for instance, occur more in children than in adults. Children who do not wash hands after handling contaminated materials are, therefore, likely to pick pathogenic organisms including parasites which end up in their mouths and eventually in their gastrointestinal system.

From historical times, it is known that “*pica*” which is a stage when the young pick any objects and use their mouths to explore them, leads to transmission of oro-faecal micro-organisms. Most geohelminths are transmitted this way. It is, therefore, not surprising that ascariasis and trichiuriasis occur more frequently in the young than in adults. Complications associated with these infections which include malnutrition, intestinal obstruction and rectal prolapse occur commonly in these age groups. Again giving health education to the affected communities would very much help reduce transmission potential and hence improve the health standards of those most affected.

Other than helminths, protozoan parasites are also known to occur more frequently in children and sometimes causing severe disease. Their transmission may either be congenital in which case manifestations are seen in very early childhood or are acquired later in life. Unlike in most helminthic infections, the severity of protozoal infections depends on the immunological status of the affected individuals.

Plasmodium falciparum malaria transmitted by the female *Anopheles* mosquito is one of these protozoal infections known to cause severe clinical manifestations in under fives and pregnant women particularly primigravidae. In both cases, the immune system has been found deficient. Disease progression may, therefore, be rapid and severe leading to a fatal outcome if not promptly attended to. Malaria attacks have been estimated to be

between 300 to 400 million cases annually worldwide with one to two million deaths, mostly in young children (7,8). Again, most of the deaths are in sub-Saharan Africa, where up to 175 deaths per 1000 live births occur before the age of five years (9,10). Despite efforts to control it in Africa, the incidence of malaria continues to rise steadily. This is because of: the spread of resistance by *Plasmodium* parasites to the commonly available and affordable drug chloroquine; the impoverished economies of most developing countries resulting to inadequate supplies of essential drugs and tools for control; the increase in unplanned urbanisation and the consequent increase in mosquito breeding areas and; the development of epidemics in the wake of poor health infrastructure, social unrest, climatic changes, agricultural or land development, famine and refugee movements.

All the above factors will continue impacting negatively on the health of the people, particularly the susceptible children, if no emphasis is laid on controlling diseases which threaten their survival. It is because of this that this issue of the East African Medical Journal dedicates a number of articles to parasitic infections in children for our attention and necessary action.

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