Dedication

To my people who are suffering poverty and marginalization

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Abstract

The aim of this study was to investigate the prevalence of urinary schistosomiasis among school children attending the primary school of Taibat Alahamda village, Khartoum North, Sudan. According to some previous reports and the studies of the Federal Ministry of Health, Taibat Alahamda was considered to be an endemic area of schistosomiasis in Khartoum North locality. Therefore, Taibat Alahamda primary school for boys was selected for this study.

The first clinical laboratory sign to be investigated was to identify school children suffering from haematiuria in order to be diagnosed and treated. Some essential chemical changes observed in the urine collected from the pupils were thoroughly examined which might lead to the possible diagnosis of urinary schistosomiasis among the school children. Eight hundred thirty eight (838) pupils were examined, 47 were found to be infected with *Schistosoma haematobium*. This constituted a prevalence rate of 5.6%.

The study also revealed that the age of the pupils examined was a critical factor in contracting the disease, as most of the children infected with *S.haematobium* were above 10 years of age. When biochemical analysis was performed for all urine samples collected, protein level was shown to be an important indicator for infection with *S.haematobium*.

The results showed that 95.75% of positive cases were infected with *S.haematobium*. However, only around 4.25% cases were co-infected with both *S.haematobium* and *S.mansoni* and not a single case was infected with *S. mansoni* alone.

Significant amount of red blood cells and pus cells were detected in the urine samples examined. Also, microscopic examination of urine samples revealed that 5.48% of infected pupils were suffering from pyuria, while 6.68% had haematouria.

Other biochemical parameters of urine investigated, such as glucose, ketone bodies, urobilinogin and bile pigments, were shown to be of no clinical significance .This was possibly, due to the fact that such parameters were not directly related to the disease and, consequently, were not affected by the pathogenesis of *S.haematobium*.

When some infected children were treated, praziquantel was shown to be the drug of choice. This was observed by the fact that most of the treated pupils 70.2% responded well to the oral single dose of praziquantel. However, when a second dose of the drug was administered one month later, 100% of the pupils responded to the treatment. Interestingly, children with mixed infection of *S.haematobium* and *S.mansoni*, did not respond at all to the first dose, and only weakly to the double doses of the drug, a matter that should be thoroughly investigated in the future.

ملخص البحث

كان الهدف من هذه الدراسة **هو تشخيص و عزل الحالات المصابة بالبلهارسيا** بين أطفال مدرسة **طيبة الاحَامدة الابتدائية بنين،الريف الشمالي لمحافظة بحري** قريةِ **طيبة الاحامدة** ، شمال الخرطوم، السودان **وذلك لغرض العلاج و المتابعة و مَعرفة مدى انتشار الإصابة في هذا الوسط ،مع معرفة التغيرات الكيميائية التي تطرأ على عينة البول في حالة الإصابة.** طبقاً لبَعْض التقارير السابقة ودراسات وزارة الصحة الاتحادية ،**تعتبر طيبة الاحامدة من المناطَق الموبوءَة بالبَلهارسيا ،ولذا اختيرتَ مدرسة طيبة الاحامدة الابتدائية بنين أن تكون موضوع هذه الدراسة.**

التحليلات المختبرية السريرية الّتي أجريت كَانتْ لتمييز التلاميذ الذين يعانون من البول الدموي كي يشَخصوا ويعَالجوا،مع ملاحظة بَعْض التغييرات الكيميائية الضرورية في عينات البول التي جمعتْ منْ التلاميذ الذين تُضمّنوا في هذه الدراسة، وتم فحصَ كل العينات لثمانمائة ثمانية وثلاثون (838) تلميذ و قد اظهرَ سبعة وأربعون (47) تلميذا نتيجة ايجابية للفحص و كَانَ انتشار العدوى في المدرسة ككُلٍ 5.6 %.

أوضحت الدراسة إن العمر هو العامل الحاسم فى حصَر الاصابة فى فئة معينة لان معظم التلاميذ المصابين كانوا فوق(10) سنوات.

عندما أجريت التحليلات الكيماوية لكُلَ عينات البول أظهرت إن مستوى البروتينِ كان مؤشراً مهماً للعدوى ببلهارسيا المجارى البولية.

اظهرت الدراسة إن حوالي 95.75 % من التلاميذ الذين اظهروا نتيجة ايجابية للفحص كانوا مصابين ببلهارسيا المجارى البولية كما نجدَ حوالي 4.25 % التلاميذ كَانوا مصابينِ بكلتا النوعين ولم ترصد اى حالةَ إصابة بالبلهارسيا الحشوية.

كمية هامة من خلايا الدم الحمراء لوحظت 48 % وكذلك خلايا القيح 68% اكتشفت في عينات البول التي فحصت .

أما الفحوصاتَ الكيماوية الأخرى التي أجريت للبول كالجلوكوز، الأجسام الكيتونية ، أملاح وصبغات صفراء لم يكن لها اى أهمية سريرية، لأن مثل هذه المؤشرات الكيماوية لَمْ تتعلق مباشرة بالمرض.

كان عقار البرزكوانتيل هو الخيار الأفضل لعلاج المصابين, بعد الجرعةِ الأولى من العلاج التي أعطيت عن طريق الفم , اظهر أغلب التلاميذ المُعَالَجينِ استجابة حسنة للعلاج 70.2% لكن عند إعطاء الجرعة الثانية من نفس العلاج بعدَ شهرَ للذين لم يستجيبوا للجرعة الأولى،كانت الاستجابة للعلاج بنسبة 100%.

مما يثير الانتباه ان الأطفال المصابين بالعدوى الثنائية لكلتا النوعين، لَمْ يستجيبوا للجرعة الأولى، وكانت استجابة ضعيفة حين اعطاء الجرعَة مضاعفة،لاهمية هذا المرض فى السَودان نقترح دراسات تفصيلية مستقبلا خصوصا للتلاميذ الذين يعيشون فى المناطق التى يستوطن فيها المرض.

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