

## **Epidemiological study of Schistosoma haematobium infection in Rummana sub- district of Al-Qaim district.**

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### **Abstract**

Schistosoma haematobium infection was studied among 1118 individuals in Rumman, Al-Qaim district during the period from Oct., 1995 to Aug., 1996, using Nuclepore filtration technique. Prevalence of infection was found to be 8.5 %, while the intensity of infection was  $1.797 \pm 0.451$ . Individuals with history of haematuria had higher prevalence and intensity of infection 40% and 47% if infected individuals had macroscopical haematuria and proteinuria respectively. Individuals with history of treatment had significantly lower prevalence and intensity of infection. Farmer's families revealed significantly higher prevalence and intensity of infection than other occupations.

### **Introduction**

Schistosoma haematobium infection considered to be an important public health problem in Iraq. Higher percentage of infection found between children 6-14 years old in southern part of Iraq (1). Percentage of infection in Ramadi during 1964 and 1965 were 4.8% & 2.3% respectively, while among school children in Al-Qaim district for the same years were 7% & 9% respectively, While among school children in Al-Qaim district for the same years were 7% & 9% respectively (2). Prevalence of infection in Seagull (Mlssan) was 43.5% (3). This investigation was devoted to study the infection of S. haematobium in Rummana sub-district, Al-Qaim district.

### **Materials & Methods**

Urine samples were randomly collected using simple random sampling technique from school children and house -hold from Rummana 15 Km north of Al-Qaim during Oct. 1995 - August. 1996 1118 samples were obtained between 10A.M. , which represent 7.06 % from the total population. Each sample .was collected according to (4). A Questionnaire including data regarding age, sex, residence, occupation of father, presence and history of haematuria and history of chemotherapy was filled . Examination of urine was done by membrane liberation technique and the number of ova in 10 mls of urine record as described by (5),(6).

### **Result and Discussion**

Out of 1118 urine specimens collected, 787 were from males (71%) and 331 of females (29%) which giving male to female ratio of 2.39:1. The mean age was  $12.4 \pm 9.77$ , with a range from (1-70 years). The prevalence of and S. haematobium infection in Rummana found to be 8.5% which was similar to that reported by (2) during 1964 and 1965 in Al-Qaim district; much higher than that of the Institute of Endemic Diseases (7) for the last six month of the year 1995 in Rummana (3.2%). Such variation may be due to the use of different diagnostic technique. Albuhardan a region of Rummana fig. 1; had significantly higher prevalence of infection than others area, whereas Khtaila - Deghaima are was free from infection. No significant differences were observed between the prevalence rate of infection and the sex, the

same results had been observed in Iraq (8), (9). Also in Zambia (10) and Nigeria (11) which indicate that both sexes have similar chance of exposure to infection.

Other studies from Iraq (6), Egypt (12), (13) and Zimbabwe (14) indicated that males had significantly higher prevalence of infection than females. The highest prevalence of infection in Rummana was found among those below 15 years of age especially age group (5-9 years). It could be attributed to the high levels of water contact activities in younger age than in the older age. This also was found by (15) all over Iraq, (6) in Thiqr and (1) in Basrah . The intensity of infection represented by mean value of log egg output /10 mls of a urine according to (16) in Rummana was found to be  $1.797 \pm 0.541$ , which was higher than that reported by (6) in Thiqr  $1.269 \pm 0.498$  and (17) in Egypt  $1.149 \pm 0.939$ . No significant differences was demonstrated between the intensity of infection in males  $1.822 \pm 0.474$  and females  $1.736 \pm 0.391$  which were higher than that reported by (1) in Basrah and (6) in Thiqr; but it is similar to that reported by (11) in Nigeria .

The highest intensity of infection was found among those below 15 years of age with a peak at five to nine years of age. The infection showed a steady decline above nine years reaching the lowest values among those above 19 years of age. It could be attributed to the increase in immune response with increase of age individuals, which leads to decrease I egg output (18). These findings were similar to that reported by (6) in Thiqr . The sex and age distribution of intensity of infection had a similar pattern to that of prevalence rate. This finding was in agreement with the found by (19), (13) in Egypt, (6) in Thiqr. The age distribution of prevalence of intensity were also, recorded in different area of the Sub-district with exception of the Rummana center, where no infection was recorded below five years. However proper explanation could not be given for this finding; but individuals living in the Rummana center where relatively high Socio-economic and educational level than the other area. The significantly higher prevalence and intensity of infection demonstrated among individuals in Albuhardan (12.4%) could be due to high percent of canal and ponds were infested with intermediate host *Bulinus truncatus* shedding cercariae of *S. haematobium* and high percent of human-water contact activities in the area, whereas Khtaila-Deghaima area was free of infection may due to the absence of intermediate host in this area (20). Patient with history of haematuria (20.4%) within the last Two years had significantly higher prevalence of infection than those without history of haematuria (4.98%). This agreed with that reported by (6) in Thiqr. While no significant difference was detected between the intensity of infection in individuals with the history and those without history of haematuria. Which could attribute to variation in the level of water contact activities and the use of anti – schistosomal drugs . 40% of infected individuals had macroscopical haematuria , (6) in Thiqr reported the same result. Intensity of infection in individuals with macroscopical haematuria was significantly higher than those without macroscopical haematuria. This finding in agreement with that reported by (6) in Iraq, (21) and (22) in Kenya and (23) and (11) in Nigeria. Proteinuria was demonstrated in 47% of infected individuals and indicated significantly higher intensity of infection than those without Proteinuria. This agreed with that reported by (21) and (22) in Kenya and (23) in Nigeria . Only 26.2% of the total number examined gave a history of treatment with praziquantel within the last two years. A significantly lower prevalence and intensity of infection was observed among individuals with history of treatment than those without history of treatment; a finding which points out the effectiveness of praziquantel in cure and reduction of eggs output (24), (18). Our finding is in agreement with that reported by (6) In Thiqr, and (22) in Kenya . The prevalence and intensity of *S. haematobium* infection were significantly higher among farmers than other occupations and it could be attributed to farmers were more contact with water than other occupations this also reported by (25), (26) in Iraq and (27) in Egypt .

### **Recommendations**

Further studies should be done using filtration technique to be detect the infection with continues surveillance of the area, and mass chemotherapy of infected persons and especially those with history and macroscopical haematuria.

















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### الخلاصة:

درست إصابة المنشقة المثانية بين 1118 فردا من منطقة الرمانة قضاء القائم خلال الفترة المحصورة بين تشرين الأول 1995 و آب 1996، استعملت التقنية الغشائية Nucleopore filtration technique بلغ معدل انتشار الإصابة في ناحية الرمانة 8.5% بينما شدة الإصابة المتمثلة بمتوسط لوغاريتم وضع البيوض لكل 10 مليلتر من الإدرار ( $0.451 \pm 1.797$ ). يشكل الأشخاص المصابين مسبقاً بالتبول الدموي معدل انتشار وشدة إصابة عاليين (20.4% و  $0.457 \pm 1.852$  على التوالي) يعاني 40% و 47% من المصابين بولا دمويًا ظاهرًا وبروتين في الإدرار على التوالي ينخفض كل من معدل انتشار وشدة الإصابة منويًا في الأشخاص المعالجين مسبقاً (4.8% و  $0.366 \pm 1.524$  على التوالي) مقارنة مع الذين لم تتم معالجتهم (98% و  $0.450 \pm 1.846$  على التوالي) تشكل العوائل الفلاحية معدل انتشار و شدة إصابة عاليين (8.97 و  $0.418 \pm 1.907$  على التوالي) عند المقارنة بالمهن الأخر.