

Study prevalence of urinary schistosomiasis among human in Baghdad province

دراسة مدى انتشار داء المنشقات البولية في الانسان في محافظة بغداد

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Abstract

A total of 643 urine samples from suspected patients attending Al-Yarmuk hospital in Baghdad had been examined during period from 1st December 2009 to the end of November 2010, to detected urinary schistosomiasis (*Schistosoma haematobium*).

Out of 643 urine samples examined, 131 (20.4%) were infected with the parasite. According to the seasons of years, highest rate of infection was in autumn and spring (24.6%, 24.2% respectively), winter season exhibited the lowest rate of infection (7.2%). The result showed that individuals with age up to 25 years have highest rate of infection with urinary schistosomiasis (31%), while it's so much decreased among individuals that were more than 50 years old (10.5%). The study also showed significant differences at level $P < 0.01$ between rate of infection in male (26.1%) and female (6.8%).

Clinical signs that related to urinary schistosomiasis infection in some suspected patient were recorded.

المستخلص

فحصت 643 عينة ادرار من المرضى المراجعين لمستشفى اليرموك التعليمي في بغداد للمدة من الأول من كانون الاول 2009 لغاية نهاية شهر تشرين الثاني 2010 للكشف عن مدى انتشار داء المنشقات البولية (*Schistosoma haematobium*) في الانسان.

وجد ان عدد العينات الخمجة بالطفيلي كان 131 (20.4%) وسجلت أعلى نسبة خمج في فصلي الخريف والربيع (24.6% ، 24.2% على التوالي)، بينما اظهر فصل الشتاء اقل نسبة خمج بالطفيلي وبلغت 7.2%. اظهرت النتائج ان اعلى نسبة خمج سجلت في الفئة العمرية 10 – 25 سنة (31%) وانخفضت كثيرا في الاشخاص الذين تجاوزت اعمارهم 50 سنة (10.6%)، كما بينت الدراسة وجود فروقات احصائية مهمة على مستوى $P < 0.01$ بين نسبة الخمج في الذكور (26.1%) والاناث (6.8%). تم تسجيل العلامات السريرية المتعلقة بداء المنشقات البولية لعدد من المرضى المراجعين الى المستشفى.

Introduction

Schistosomiasis is clinical term applied to infection with one of a series of related trematode parasites that endemic in at least 76 tropical and subtropical countries [1]. High prevalence of urinary schistosomiasis where estimated in Sudan and Nigeria (56%, 91.4% respectively)[2,3]. *Schistosoma haematobium* is endemic in Iraq and constituting an important health problem in this country[4]. First high rate of infection with parasite was recorded in 1936 by[5] in Thiaquar, Basrah and Miasan (80%, 80% and 84% respectively). The prevalence of the parasite was much decreased in 1980s and 1990s, that was 4.9% [6], 4% [7], 3% [8], 4% [9] and 4.42% [10]. The present study aimed to through light on prevalence of urinary schistomiasis in Iraq in the first decade of the 20th century.

Material and methods

Sample collection: sample of the last drops of urine from 643 suspected patients, attendy Al-Yarmuk hospital in Baghdad, were collected in well locked containers and transported daily to the central health laboratory in cold pox. Also clinical signs that appeared on patients were recorded. Samples were examined as following procedure:

- I. 10 ml of urine sample was pulled by disposable syringe with plastic needle.
- II. The plastic needle was removed, and syringe connected to filter funnel that contain filter.
- III. Urine sample inoculated in filter funnel.
- IV. Filter funnel was removed from syringe, and then filter was put on slide by forceps, with drops of physiological solution to avoid dehydration.
- V. Slide examined by Olympus microscope x10 to detected eggs of *Schistosoma haematobium* [11].

Statistical examination was done for data by using Chi-square (χ^2) examination for analysis of the results [12].

Results and discussion

The results showed that out of the total 643 urine samples, 131(20.4%) found infected, highest infection reported in autumn (24.6%) and lowest infection was 7.2% in winter (table 1).

The age involved in this study were ranged between 10-more than 50 years, highest rate of infection was among human with age less than 25 years (31%), old ages (more than 50 years) showed only 10.5% (table 2).

According to the sex, males exhibited high rate of infection (26.1%), that much decreased (6.8%) in females (table 3).

Out of 643 suspected patients (males and females), 83 individuals show haematuria, but only 66 individuals of them found infected with urinary schistosomiasis (79.2%). While about 20.5% of individuals with haematuria were found free from Schistosomiasis.

The high prevalence of infection in this study (20.4%) especially in males may be attributed to large extences of water surface which enhances development of high snail population, human water contact behavior and environmental factors that attack snail population favorably. The present study shows high rate of infection in comparison to the previous studies during 1980s and 1990s [6, 7, 8, 9, 10], this may be related to increase swimming syndrome in rivers, using of river water in household utilization and decrease the sanitary services (disinfecting, treatment)that provided to human population. According to season of infection, Automun and spring exhibited high rate of infection reaching to 24.6%, 24.2% respectively which may be due to favourity of environmental factors that increase snails number, shedding of cercariae, and actively of infective stage (cercariae).

These results in agreement with [3, 13], while the infection was much decreased in winter(7.2%), this which may be attributed to low temperature and high flow of rain water that caused inhibition of Meracidiums development to cercariae, and prevent infection of snails by meracidiums of *S. haematobium* respectively, again the result in agreement with [3,13].

More males (26.1%) were infected than females (6.8%), that may be due to deference in exposure status , the above results was also reported by [2,3,13].most of previous studies shows that prevalence of urinary schistosomiasis was high in ages ranged between 7-18 years old[2,3,13], this in agreement with results of our present study that shows high prevalence of infection among individuals aged 10-25 years(31%), which may be related to behavior of young persons , especially in rural areas , those always swimming in rivers which consider the main source of infection with schistosomiasis

In return to clinical signs of urinary schistosomiasis, the main one was heamaturia, but this sign not always indicated bilharzial infection, this results similar to that found by [13] who reported that only 48.05% of individuals infected with urinary schistosomiasis shows haematuria, while about 1.23% of individuals found free of the parasite but with macrohaematuria signs.

Table (1): Prevalence of urinary schistosomiasis among human during different months of year.

Months	Sample examined	Sample infected	%
.December 2009	41	5	12.1
Jan. 2010	25	1	4
Feb. 2010	37	2	5.4
March 2010 *	67	15	22.3
April 2010 *	68	16	23.5
May2010 *	71	19	26.8
June 2010	34	3	8.8
July 2010	48	9	18.7
August 2010	50	10	20
Sep. 2010 *	79	22	27.8
Oct. 2010 *	78	22	28.2
Nov. 2010 *	45	7	17.7
Total	643	131	20.4

* P< 0.05

Table (2): Prevalence of urinary schistosomiasis among human according to the age.

Age/ year	Sample examined	sample infected	%
10 – 25	226	70	31 **
26 – 50	199	38	19.1
More than 50	218	23	10.6
Total	643	131	20.4

** p< 0.01

Table (3): Prevalence of urinary schistosomiasis among males and females individuals.

Sex	Sample examined	sample infected	%
Male	452	118	26.1 **
Female	191	13	6.8
Total	643	131	20.4

** p< 0.01

References

1. Despommier, D. D.; Gwads, R. W.; Hotez, P. J.; Kuirsch, C. (2004). Schistosomiasis. Chapter 34. In: Parasitic Diseases. 5th Ed. Medical Ecology. New York, Apple Trees Production. 213 pp.
2. WHO. (2010). High prevalence of urinary schistosomiasis in two communities in south Darfur. Sudan.
3. Nwabueze, A. A. and Opra, K. N. (2007). Outbreak of urinary schistosomiasis among school children in Riverine Communities of Delta State, Nigeria, J. Med. Sci., 7(4):572-578
4. Tawfik, L. E.; Al-Wafa, R.O.; Mukhlis, G.M. (1995). Schistosomiasis of the female genital tract in Iraq. Iraqi Journal Community Medicine 1:37-42.
5. Mills, E. A.; Machattie, C. and Chadwick, C. R. (1936). *Schistosoma haematobium* and its life cycle in Iraq. Trans.R.Soc. Trop. Med. Hyg., 30:317-343.
6. Report of investigation of endemic diseases. Baghdad, Iraq, Ministry of Health (1982).
7. Baquir, H. (1982). Summary of progress in national schistosomiasis control program of Iraq. Bull. End. Dis., 20:4-56
8. Yacoub, A. A. H. (1985). The epidemiology of *Schistosoma Haematobium* infection in Basrah, southern Iraq. Parasitological, Serological and behavioral studies, Ph.D.thesis. London University.
9. Al-Saleem, T.; Alsh, N.; Tawfik, L. E. (1990). Bladder cancer in Iraq: the histological subtypes and their relationship to schistosomiasis. Annuals of Saudi Medicine. 10:161-164.
10. Al-Saa'dy, H.M. (1997). Epidemiological, Parasitological and Immunological study of *Schistosoma haematobium* infection in Maysan, Southern Iraq. Ph.D.Thesis, Basrah University.
11. Peters, P. A.; Warren, K. S. and Mahmoud, A. A. F. (1967). Rapid accurate quantification of *Schistosoma* eggs via nucleopore filters. J. Parasitol., 62; 154-155.
12. المحمد، نعيم ثاني، الراوي، خاشع محمود، يونس، مؤيد ساوة والمراني، وليد خضير (1986). مبادئ الإحصاء. مديرية دار الكتب للطباعة والنشر. جامعة الموصل.
13. Al-Biaty, H. S. (2000). Epidemiological study of *Schistosoma haematobium* in Baladrooze subprovince. M.Sc thesis. Vet. Collage. University of Baghdad.