Is there any change in the prevalence of intestinal and urinary parasitosis among "non-permanent resident" students in Tunisia ?

Sonia Trabelsi, Myiram Bouchakoua, Amira Aouinet, Amira Sellami, Samira Khaled

Laboratoire de Parasitologie-Mycologie de l'Hôpital Charles Nicolle de Tunis. Faculté de Médecine de Tunis Université Tunis El Manar. Tunisie

S. Trabelsi, M. Bouchakoua, A. Aouinet, A. Sellami, S. Khaled

Y a-t-il un changement de la prévalence des parasitoses intestinales et urinaires chez les étudiants non résidents permanents en Tunisie ?

LA TUNISIE MEDICALE - 2012 ; Vol 90 (n°07) : 530 - 532

RÉSUMÉ

Prérequis : Les parasitoses intestinales sont cosmopolites, souvent liées au péril fécal. Par contre la bilharziose urinaire est une maladie éliminée en Tunisie Dans le cadre de la surveillance de parasitoses digestives et urinaires émergentes et ré-émergentes, les étudiants non résidents permanents en Tunisie bénéficient d'un examen parasitologique des selles et des urines avant de pouvoir s'inscrire dans une institution.

But: Etudier la prévalence des parasitoses digestives et de la bilharziose urinaire chez les étudiants non résidents permanents en Tunisie.

Méthodes : Il s'agit d'une étude rétrospective menée au Laboratoire de Parasitologie-Mycologie de Charles Nicolle de Tunis pendant la période d'inscription des 6 années universitaires 2005 - 2010. 328 étudiants ont bénéficié d'un examen parasitologique des selles et des urines.

Résultats : 144 étudiants (43,9%) étaient porteurs de parasites intestinaux. Un poly-parasitisme a été noté chez 69 étudiants (47,9%). Les protozooses intestinales ont été, de loin, majoritaires (96,9%). 9,7% des parasites identifiés ont été pathogènes. Trois cas de bilharziose urinaire (0,91%) ont été diagnostiqués. L'origine géographique des étudiants parasités se répartissait d'une manière égale entre la Mauritanie, le Burkina-Faso et la Côte d'Ivoire.

Conclusion : La prévalence du parasitisme intestinal et urinaire chez les «résidents non permanents» des étudiants en Tunisie n'a pas changé. Cela justifie une surveillance systématique parasitologique pour les étudiants en provenance de zones de forte endémicité des parasitoses afin d'éviter leur introduction.

Mots-clés

Parasitoses intestinales- Bilharziose- Tunisie- Etudiants étrangers- Epidémiologie

S. Trabelsi, M. Bouchakoua, A. Aouinet, A. Sellami, S. Khaled

Is there any change in the prevalence of intestinal and urinary parasitosis among "non-permanent resident" students in Tunisia?

LA TUNISIE MEDICALE - 2012 ; Vol 90 (n°07) : 530 - 532

SUMMARY

Background: Intestinal parasitosis are cosmopolitan affections, often related to the fecal peril. However urinary bilharziosis is a disease eliminated in Tunisia. As part of monitoring the emergence and re-emergence of intestinal parasitosis and urinary bilharziasis, foreign students benefit from parasitological systematic monitoring stool and urine during their enrolment to the University.

Aim: To study the prevalence of various intestinal parasitosis and urinary bilharziasis among non permanent resident students in Tunisia.

Methods: A retrospective survey was carried at the Laboratory of Parasitology- Mycology of Charles Nicolle Hospital of Tunis during the inscription period of 6 university years 2005-2010. 328 students profited from a parasitological examination of stool and urine.

Results: 144 students (43.9%) harbored intestinal parasites. More than one parasite was detected in 69 students (47.9%). Intestinal protozoa were the majority of identified parasites (96.9%). 9.7% of identified parasites were pathogenic. Three cases (0.91%) of urinary bilharziasis were diagnosed.

Conclusion: The prevalence of intestinal and urinary parasitism among the "non-permanent residents" students in Tunisia has not changed. This justifies a systematic parasitologic monitoring for students coming from areas of high endemicity of parasitosis in order to avoid the introduction of these.

Key-words

Intestinal parasitosis. Bilharziosis. Tunisia. Foreign students. Epidemiology

Intestinal parasitosis are cosmopolitan affections, often related to the fecal peril. They know a continual variation due to changes in environmental and socio-economic development. Urinary bilharziosis is a parasitosis that had occurred in Tunisia under an endemo-epidemic mode [1]. However, thanks to the implementation of the National Programme for the eradication of this disease, Tunisia has reported an end and stop in the indigenous transmission of bilharziasis which the latter case was recorded in 1984 [2, 3]. Within the policy and framework of control and monitoring the re-emergence of intestinal parasitosis and urinary bilharziasis, foreign students benefit from parasitological systematic monitoring stool and urine during their enrolment to the University.

The aim of this study was to determine the prevalence of various intestinal parasitosis and urinary bilharziasis among non permanent resident students in Tunisia.

PATIENTS AND METHODS

A retrospective survey was carried at the Laboratory of Parasitology- Mycology of Charles Nicolle Hospital of Tunis during the inscription period of 6 university years 2005-2010. Three hundred and twenty eight students profited from a parasitological examination of stool and urine. The stool samples were firstly examined microscopically. Formol-ether concentration method was then performed to increase the possibility of finding eggs or cysts forms. No method was used to distinguish *Entamoeba histolytica* and *Entamoeba dispar*. The urine samples were centrifuged, the pellet was examined microscopically to identify *Schistosoma haematobium*.

RESULTS

The mean age of the students was 26, 4 years (ranging from 16 to 53 years). The majority of students were essentially from Sub-Saharan Africa (Table 1).

Table 1: Geographic origin of the foreign students

Origin	Number	%
Sub-Saharan Africa	241	74.8
Maghreb	62	19.3
Middle-east	15	4.7
Europe	4	1.2

Parasitological examination was positive in 144 students (43.9%). More than one parasite was detected in 69 students (47.9%). The frequency of parasitism and polyparasitism was most important in students from Sub-Saharan Africa (Table 2). Intestinal protozoa were the majority of identified parasites (96,9%), helminthiasis were found only in 3,1% of cases (Table III). 9,7% of identified parasites were pathogenic of wich *Entamoeba histolytica /dispar* in 40,9% of cases, *Giardia intestinalis* in 27.3%, *Trichiuris trichiura* in 9.1%, *Hymenolepis nana* in 9.1%, *Ancylostoma* in 9.1% and *Tænia saginata* in 4.5% of cases. They were exclusively identified in students who are native of Sub-Saharan Africa and Maghreb (Table 3). Among the 328 urine samples, three cases (0.91%) of urinary bilharziasis were diagnosed. The students were from Mauritania (one case), Burkina-Faso (one case) and Ivory Coast (one case).

Table 2: Prevalence of intestinal parasitism depending of the geographic origin

	Sub-Saharan Africa	Middle-east	Maghreb	Europe
Parasitism (%)	48.1	33.3	32.3	0
Polyparasitism (%)	23.7	7.1	14.7	0
Pathogenic parasites (%)	7.1	0	3.2	0

Table 3: Prevalence of various intestinal parasitosis

	Species	Nombre	%
Protozoans	Endolimax nanus	72	31.8
	Blastocystis hominis	69	30.5
	Entamoeba coli	53	23.4
	Giardia intestinalis	6	2.7
	Pseudolimax butschilli	2	0.9
	Entamoeba histolytica/ dispar	9	4
	Entamoeba hartmanni	8	3.5
	Total	219	96.9
Helminths	Hymenolepis nana	2	0.9
	Ancylostoma	2	0.9
	Trichiuris trichiura	2	0.9
	Teania	1	0.4
	Total	7	3.1

DISCUSSION

The prevalence of intestinal parasitism among African students during the last 6 years (43.9%) lies between the rates which are reported by the study Shaker et al (1984-1988) who found a prevalence of 68.9 % [4] and the rate reported by Yaakoub et al study (1990-2006) which found a prevalence of 39.6% [5]. Infected students were mainly native from sub-Saharan Africa, which is similar to previous studies [4, 5]. The half of them harbored more than one parasite, likely is reported in other research [2, 6, 7] (Table 4). The majority of identified parasites were protozoa (96.7%), joining the results of the other series [4, 5]. However, our research has found an important drop in the frequency of the helminthiases compared with previous year's data [4, 5]. Indeed, the ankylostomiasis and the strongyloidiasis

prevalence was higher in the earlier series [4, 5] (Table 4).These two parasitosis are facing net drop and decrease in Tunisia as a result of improving hygiene conditions. Similarly, the pathogenic pest infestation rate is showing important decrease rate.

Table 4: Comparison of our results with other studies

	Our study (2005-2010)	**Chaker et al (4) (1984-1988)**	**Yaakoub et al (5) (1990-2006)**
Parasitism (%)	44	68.9	39.6
Polyparasitism (%)	47.9	47.2	39.6
Protozoans (%)	96.7	81.3	72.53
Helminths (%)	3.3	18.7	27.46

About urinary bilharziasis, it is a parasitosis known in Tunisia since 1891 in the Sub-Saharan region. Three major endemic regions were identified namely Gafsa, Nefzaoua and Degueche [1] with more expansion in the north side within the region of Hajeb El Ayoun [8]. In 1970, Tunisia implemented the urinary bilharziasis eradication programme, and that was in 1984 when the last indigenous transmission case was recorded [1-3]. Currently, we are seeing the emergence of a new epidemiological profile of this parasitosis characterized by cases of import [3].

In this context, our research represents the latest and recent survey in Tunisia studying the prevalence of urinary bilharziasis among foreign students. Despite the relatively low number in the study population, the prevalence is comparable to that reported by study Sghaier et al (1990-2006) which had reported 0.96% [9].

The persistence of imported cases of urinary bilharziasis, as well as the presence of the intermediate host for this parasitosis the *Bulin* mollusc, having high density in the North of Tunisia (Tabarka, Kef, Cap Bon...) [1], constitute a risk of resumption of indigenous transmission of this disease.

Therefore, a systematic parasitological monitoring is justified and recommended for the students originally coming from areas of high endemicity of bilharziasis [3] along with an enhanced therapeutic support, better availability of Praziquantel. This drug is currently not listed among hospital nomenclature and is only issued by the Department of basic health care at the Ministry of public health.

CONCLUSION

There is no significant change in the prevalence of intestinal parasitism among the “non-permanent residents” students in Tunisia. This justifies a systematic parasitologic monitoring for students coming from areas of high endemicity of intestinal parasitosis in order to avoid the introduction of parasitosis which became rare in Tunisia, despite of a net decrease of the helminthiasis. In addition, preserving urinary bilharziasis eradication in Tunisia will be achieved by ensuring systematic screening of imported cases and by implementing early and effective treatment of the affected subjects.

References

1. Ben Rachid MS, Ben Ammar R, Redissi T et al. Géographie des parasitoses majeures en Tunisie. Arch Institut Pasteur Tunis 1984; 1:17-41.
2. Chaker E, Latiri Z, Gargouri S. Les parasitoses chez les étudiants non residents en Tunisie: intérêt des examens systématiques. Maghreb Med 1991;242:36-9.
3. Ben Hriz M, Ben Farhat L, Hlioui S et al. La bilharziose urinaire: à propos de 9 cas importés. Tuni Med 2007;85:150-4.
4. Chaker E, Latiri Z, Gargouri S. Les parasitoses chez les étudiants non résidents en Tunisie: intérêt des examens systématiques. Maghreb Med 1989;242:36-9.
5. Yaakoub A, Sghaier L, Anene S et al. Qu’en est-il des parasitoses intestinales chez les étudiants non résidents permanents en Tunisie: Bilan de 17 ans de surveillance au Laboratoire de Parasitoogie-Mycologie du CHU La Rabta. Essaydali 2007;104:17-21.
6. Hammami N, Chaker E, Belhadj S, Ben Salah M, Ben Rachid MS. Les parasitoses digestives chez les étudiants non residents en Tunisie. Prévalence et intérêt du contrôle systématique. Essaydali 1994;53:37-9.
7. Siala E, Aoun K, Zallagua N, Maatoug R, Bouratbin A. Intérêt du dépistage des parasitoses digestives et urinaires chez les étudiants non résidents permanents en Tunisie. Arch Inst Pasteur Tunis 2003;80:29-33.
8. Ben Rachid MS, Rey L, Ben Ayed H. Un nouveau foyer de bilharziose urinaire en Tunisie : Hajeb El Ayoun. Arch Institut Pasteur Tunis 1973;501:95-104.
9. Sghaier L, Yaakoub A, Anene S et al. Les parasitoses sanguines et urinaires chez les étudiants non résidents permanents en Tunisie. Rev Tun Infectiol 2008;2:32-6.