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Research Article

Frequency and Risk Factors of Entropion Trichiasis Trachomatous at the Ophthalmologic Hospital Saint André De Tinré (OHSAT) in North Benin

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Abstract

Introduction: Despite centuries of struggle, trachoma remains one of the main infectious causes of preventable blindness worldwide. This work aims to study the frequency and associated factors of entropion-trichiasis trachomateux at OHSAT in 2014.

Framework, Patients and Methods: It was a descriptive, cross-sectional and analytic study started from 25 august to 5 September 2014. The comprehensive sampling was used and information's were collected using questionnaires and tabulation sheet. Data analysis was made using Epi Info version 3.5.1 and Pearson Chi2 test was used for comparison with significance $p < 0.05$. The variables studied were the Entropion trichiasis trachomatous, sociodemographic, health, environmental and behavioral risk factors.

Results: The frequency of ETT was 4.26 at HOSAT in 2014. The mean age of patients was 48.02 +- 16.17 years and the sex ratio was 1.17 years in favor of male. ETT was associated with the following risk factors: sex, profession, education level, socio-economic status, place of origin, promiscuity, water supply source, existence of latrine or not, ocular infection during childhood.

Conclusion: Entropion-trichiasis trachomatous is a blindness disease that involved millions families especially in Africa and remains a public health problem in northern Benin with many risk factors. The implementation of SAFE strategy against trachoma should be strengthened in all its components.

Keywords: *Trachoma; Trichiasis; Entropion; Risk Factors; North Benin*

Introduction

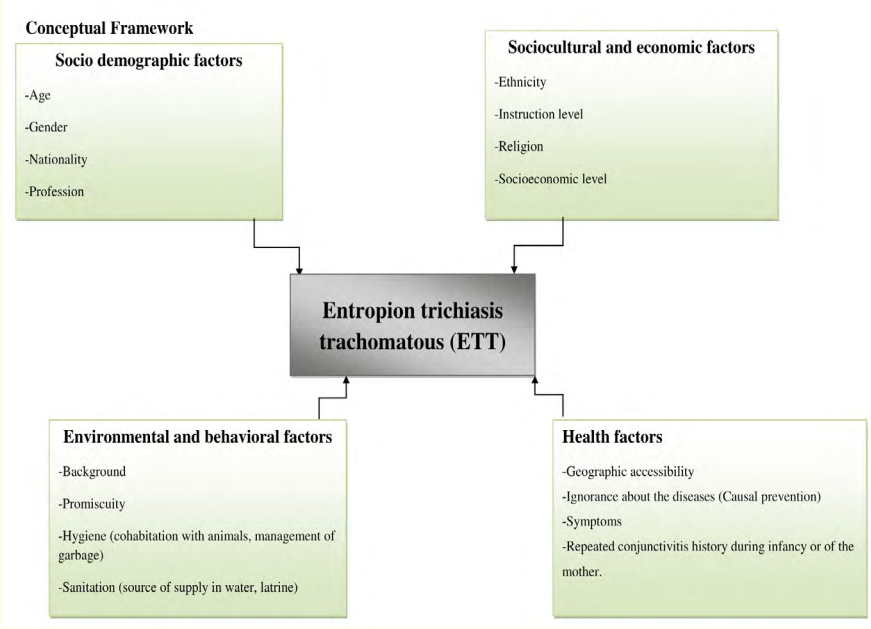
Nowadays, trachoma one of the most ancient diseases known in the history of mankind (3000 BC), continues to do damage. It remains the leading cause of avoidable blindness in the world despite of all the efforts of the international community to eradicate it [1]. It is due to a mandatory intracellular bacterium known as *Chlamydia trachomatis* [2].

Trachoma is a transmissible kerato-conjunctivitis of chronic evolution, of which the primary infection affects mainly children [3]. It is responsible for visual impairment and blindness in approximately 1.9 million people around the world. This represents about 1.4% of

cases of total blindness worldwide [2,4]. The majority of carriers of the pathogen agent requiring treatment live in developing countries [5,6]. It is transmitted between members of the family circle and the children become infected at an early age. In adulthood, after several years of repeated reinfections, the inside of the eyelid may be covered with scar tissue (conjunctival scars) to the point where the edge of the eyelid turns inward and the eyelashes rub against the cornea (trichiasis), it is the entropion-trichiasis. In the absence of treatment, this condition leads to the formation of irreversible corneal opacities, followed by visual impairment and blindness, usually between the ages of 30 and 40 years [2,6].

In Benin Republic, trachoma occurs in northern rural areas where thousands of people are at risk or affected. However, it is important to note an absence of statistics and planning of the fight against trachoma in opposite to other countries of the West African sub region [7].

Social risk behaviors are common. Paradoxically, in the local and regional literature very few studies have been addressed to this subject; this is what justifies the choice of our theme "Frequency and risk factors associated with entropion trichiasis trachomatous at the OHSAT" which objective is to study the frequency and associated factors to Entropion-trichiasis-trachomatous (ETT) at the OHSAT in 2014.



Framework, Patients and Methods of Study

This was a cross-sectional, descriptive, analytically study extending from August 25 to September 5, 2014, in view to evaluate the frequency and risk factors of entropion trichiasis trachomatous at the Saint André de Tinré Ophthalmological Hospital in 2014.

Inclusion Criteria

Included in this study were all patients aged of 15 years and older who had consulted at the OHSAT during the collection period.

Exclusion Criteria

Excluded from the study were:

Entropion trichiasis cases caused by trauma or thermal and chemical burning, Patients who had not given their consent and patients unable to speak.

Sampling

We conducted a comprehensive recruitment of patients who consulted at the OHSAT during the data collection period. A total of 516 patients were included.

Data Collection

Two collection techniques were used. We conducted a direct interview with patients using a questionnaire. The interview was supplemented by the documentary review by the mean of a report card to have the diagnosis of the patient.

Data processing and analysis

A double data entry was made with the software Epidata 3.1 English.

The data collected were processed and analyzed with the Epi info 7 software.

The quantitative variables were expressed on average followed by the standard deviation while the qualitative variables were expressed in frequency with their 95% confidence interval.

The Chi^2 test of Pearson or Fisher, as the case may be, was used for the comparison of frequencies. The significance level was set at $p < 0.05$.

Ethical and deontological issues

In view of article 6 of the Law no 2010-40 of December 8, 2010 on the code of ethics and ethics for health research in the Republic of Benin, a letter of request for authorization was sent by the Administration of ENATSE (Ecole Nationale des Techniciens Supérieurs en Santé Publique et Surveillance Epidemiologique) to the various administrative authorities of the hospital of Tinré which in turn gave us the authorization for the realization of this study. The confidentiality of the information collected was respected.

Variables studied

Dependent: represented by trachomatous entropion trichiasis.

Independent: represented by socio-demographic factors (age, sex, nationality, occupation), sociocultural and economic factors (ethnicity, religion, educational level, socio-economic level), health factors (geographical accessibility, Symptoms, a history of repeated conjunctivitis during childhood in the mother or in the child), environmental and behavioral factors (living environment, promiscuity, hygiene, sanitation.)

Results

Frequency of entropion trichiasis trachomatous

The frequency of ETT at the OHSAT in 2014 was 4.26% (95% CI [2.75% - 6.49%]).

Factors associated with entropion trichiasis trachomatous

Age

The highest ETT incidence was in subjects older than 60 years (7.69%). The difference was not statistically significant (P = 0.0052) (Table 1).

	Total	ETT		RP [CI at 95%]	p
		Effective	Frequency (%)		
15 - 19	33	1	3.03	1	
20 - 59	353	11	3.12	0.9 [0.1 – 7.3]	0.0052
> 59	130	10	7.69	0.3 [0.1 – 2.9]	
Total	516	22	4.26		

Table 1: *Distribution of subjects according to the age in years and frequency of ETT (Tinré, 2014).*

Sex

The frequency of ETT was higher in females (7.05%). The difference was statistically significant (P = 0.007) (Table 2).

	Total	ETT		RP CI	p
		Effective	Frequency (%)		
Male	289	6	2.08	1	
Female	227	16	7.05	3.4 [1.3 – 8.5]	0.007
Total	516	22	4.26		

Table 2*: Distribution of subjects according to the gender and frequency of ETT (Tinré, 2014).*

Socio-Professional Category

The frequency of ETT was higher among housewives (9.52%). The difference was statistically significant (P = 0.022) (Table 3).

	Total	ETT		RP [CI à 95%]	p
		Effective	Frequency (%)		
House woman	147	14	9.52	8.2 [1.1 – 61.2]	
Farmer	87	4	4.6	3.9 [0.5 – 34.7]	
Breeder	32	1	3.13	2.7 [0.2 – 41.7]	
Private sector agent	37	1	2.7	2.3 [0.1 – 32.1]	
Costumer	60	1	1.67	1.4 [0.1 – 22.5]	0.022
Civil servant	86	1	1.16	1	
Craftman	19	0	0	-	
Driver	3	0	0	-	
Pupil/student	42	0	0	-	
Other	3	0	0	-	
Total	516	22	4.26		

Table 3*: Distribution of subjects according to the socioprofessionnal and frequency of ETT (Tinré, 2014).*

Level of instruction

The frequency of ETT was higher in subjects with no education at 7.02%. The difference was statistically significant (P = 0.0072) (Table 4).

	Total	ETT		RP CI	p
		Effective	Frequency (%)		
None	285	20	7.02	7.4 [1 – 54.7]	
Primary	69	0	0	-	
Secondary	105	1	0.95	1	0.0072
Superior	57	1	1.75	1.8 [0.1 – 28.9]	
Total	516	22	4.26		

Table 4*: Distribution of subjects according to the instruction level and frequency of ETT (Tinré, 2014).*

Promiscuity

The frequency of ETT was higher in subjects living in promiscuity (10.22%). The difference was statistically significant (P = 0.0002) (Table 5).

	Total	ETT		RP IC	p
		Effective	Frequency (%)		
Yes	137	14	10.22	4.8 [2.1 – 11.3]	
No	379	8	2.11	1	0.0002
Total	516	22	4.26		

Table 5: *Distribution of subjects according to the promiscuity and frequency of ETT (Tinré, 2014).*

Source of water supply

The frequency of ETT was higher in subjects using runoff (28.57%). The difference was statistically significant (P = 0.0000) (Table 6).

	Total	ETT		RP IC	p
		Effective	Frequency (%)		
Runoff waters	14	4	28.57	18.3 [4.5 – 73.8]	
Backwaters	93	11	11.83	7.6 [2.2 – 26.5]	0.0000
Pump/tap waters	217	4	1.84	1.2 [0.3 – 5.2]	
Wells waters	192	3	1.56	1	
Total	516	22	4.26		

Table 6: *Distribution of subjects according to the water supply source and frequency of ETT (Tinré, 2014).*

Existence of latrines

The frequency of ETT was higher in subjects without latrines (8.37%). The difference was statistically significant (P = 0.0001) (Table 7).

	Total	ETT		RP CI	p
		Effective	Frequency (%)		
Yes	301	4	1.33	1	
No	215	18	8.37	6.3 [2.2 – 18.3]	0.0001
Total	516	22	4.26		

Table 7*: Distribution of subjects according to the existence of latrine and frequency of ETT (Tinré, 2014).*

Discussion

Frequency of Entropion trachomatous trichiasis

As concerned our study, the frequency of ETT at the OHSAT in 2014 was 4.26% (95% CI [2.75% - 6.49%]). This result is similar to the 4% reported by Bamani., *et al*. [8] in Mali. This frequency was higher than that found by Kassahun., *et al*. [9] in Ethiopia (1.68%) and Quicke., *et al*. [10] in The Gambia (0.46%). On the other hand, it was lower than that reported by Edwards., *et al.* [11] in South Sudan where the frequency was 15.1% and lower than the result of Pyet., *et al.* [12] in the state of Kano in Nigeria.

This difference could be explained by the fact that our study was done in a hospital center and the others in population.

The frequency of trichiasis found in our study suggests an intervention because the WHO intervention threshold is 1% [13].

Factors associated with the ETT

Age

The frequency of ETT was higher in subjects older than 60 years (7.69%). This frequency is 3.03% and 3.12% respectively in the 15 - 19 years and 20-59 years age groups. We can conclude that the frequency of ETT changes with the age but the difference is non-significant. This result is similar with that of Pearson., *et al.* [14] in northwestern Ethiopia (P = 0.001). However, Rajack., *et al.* [15] in eastern Ethiopia found that the age was significantly associated with ETT and those aged of 40 - 49 years were the most affected. In our study, this result could be explained by the fact that entropion trichiasis is a complication of trachoma that occurs more than twenty years after the onset of the active phase of the disease.

Sex

The frequency of ETT was higher in females with a frequency of 7.05%. The difference was statistically significant in our study. The same observation was made by Rajack., *et al* [15]. Adult women are much more likely than men to develop corneal complications of the disease. The same result was reported by Pearson., *et al.* [14] in northwestern Ethiopia in 2013 where the frequency was higher in women but the difference was not statistically significant. This increased risk can be explained by the fact that women generally spend more time in close contact with small children, who are the main reservoir of the pathogen [6].

Socio-professional category

The frequency of ETT was higher among housewives (9.52%). The difference was statistically significant. This result could be explained by the fact that women are more vulnerable because of the cultural realities of our country, which reserve for women the follow-up of children and domestic worker, exposing them to the ETT.

Level of instruction

The frequency of ETT was higher in subjects with no education at 7.02%. This result was reported by Pearson., *et al*. [14] in Ethiopia, where the prevalence of ETT was higher among those with no education. In her work the higher the level of education, the lower the prevalence of the ETT.

We can conclude that the level of education of the subjects favors the fight against the ETT. This is due to the fact that the more educated people are; the more informed they are about the risks and means of diseases prevention.

Promiscuity

Promiscuity is a factor favoring the occurrence of ETT. Thus, our study shows that the frequency of ETT was higher among subjects living in a high promiscuity of 10.22%.

This could be explained by the fact that promiscuity increases the spread of contagious diseases. ETT is a complication of trachoma which is a non-specific and contagious bacterial ocular infection. Trachoma is highly contagious at the onset of infection and is transmitted by direct contact with infected persons or products (towels, handkerchiefs) and also by flies [16].

Source of water supply

The association between the source of water and the occurrence of the ETT is statistically significant. Thus, the frequency of ETT was high among subjects using runoff water (28.57%). There is a lower risk of trachoma when the distance to the water supply is reduced and when the quantities of water used increase. Bamani., *et al*. [8] in Mali proved that children's body hygiene, unsatisfactory with 77.2% of mothers having reporting washed their child face or their own face usually once a day without using soap in the vast majority may be an enhancing factor in the occurrence of trachoma. Also Edwards., *et al.* [11] in Mexico stated that regular face washing protects well against trachoma, as the relative risk was high among those who did not wash their face frequently.

Existence of latrines

The frequency of ETT was higher in subjects without latrines (8.37%). The difference was statistically significant. Edwards., *et al.* [11] stated that the low availability of latrines in concessions (41.4%), mainly of traditional type (84.7%), the high frequency (76.1%) of sheep and goat in concession, evacuation of stools from children on garbage piles in the immediate vicinity of habitats (57.0%) are very important factors in the proliferation of flies in the transmission chain.

Conclusion

At the end of our research, we have noticed that Entropion trichiasis trachomatous, this blinding disease affecting millions of families in the world and especially in Africa remains a public health problem at the Saint André de Tinré Ophthalmological Hospital in northern Benin with a Frequency of 4.26%.

The factors associated with the ETT at the OHSAT are mainly factors related to gender, occupation, educational attainment, socio-economic status, background, promiscuity, source of water supply and the existence of latrines. The implementation of the "SAFE" strategy in the fight against trachoma must be strengthened in all its components.

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