Prospective study of trachoma in Benghazi, Libya.

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Abstract:

Purpose: To prospectively study the incidence of trachoma in Benghazi and its relation to the sex, socio-economic state and geographic distribution. In addition, to determine the influence of this ocular pathology in the visual state of the patient.

Methods: A prospective study was conducted on 1450 Libyan citizens living in the city of Benghazi, Libya. Those subjects were the attendants of the ophthalmology outpatient central clinic and Red Crescent clinic. The subjects were submitted to full ophthalmological examination. The trachoma stages were defined according to McCallan classification. The visual acuity was determined according to WHO staging. The data was statistically analyzed.

Results: Of all the subjects examined, 1.1% had active trachoma, 26.8% demonstrated healed trachoma almost always bilaterally. Trachoma complications were manifested in 5.7% as trichiasis and 9.4 as corneal opacity. 39.9% of the affected population had visual acuity between visual defect and legal blindness.

Conclusion: Cicatricial trachoma constitute a relatively high percentage in ophthalmic patients in Benghazi, Libya, with grave complications and consequences. The disease has a high incidence in females, low socio-economic populations and rural areas.

Key words: Trachoma, Libya, Complications, Visual acuity, Socioeconomic.

Introduction:

Trachoma, is a highly contagious disease produced by Chlamydia Trichomatis (Serotypes A, B, Ba y C), which propagates easily in low socio-economic standard due to low hygienic, and insufficient sanitary environment. It’s considered as a disease of poverty which can be found frequently in it’s severe form in rural areas and miserable urbanisation. The disease has different modes of transmission; genital from mother to the newly-born, manual, by contact utilizing contaminated utensils or insect-born transmission. The incubation period is usually 4-19 days. The infection occurs in the first decade of life and progress in its active form during the second decade. The principal manifestation is conjunctivitis that can alter the physioanatomy of the lacrimal tract, eye-lids, conjunctiva and cornea, and may lead to blindness as a consequence of the disease. Trachoma is still considered as the principal cause of blindness in many parts of the third world countries. It’s estimated that about 500 millions, in endemic zones, the incidence of blindness is relatively high between 2-4%, and sometimes reaches 7%. The disease is prevalent in Africa, especially the North of Africa and the zones of El-Sahel and the Sahara; the Middle east, Central and south America. The incidence of active trachoma is much lower in urban areas than in rural zones, depending on the standard of hygiene and climatic factors. The WHO recommends a preventive strategy in many African countries; of many have their trained personnel as in Gambia, Ghana, Kenya, Lesotho, Malawi, Niger, Nigeria, Swaziland, Tanzania, Zambia and Zimbabwe. The WHO participates in the preparation of paramedical ophthalmic person through the institute of Lilongwe in Malawi and the African institute of tropical ophthalmology in Bamako (Malawi), which was founded by the WHO as a center to collaborate in the preventin blindness.

The number of the population who got benefit of the UNICEF program against trachoma, according to the estimation of 1968, indicate that by the end of 1967, more than 37 millions children affected with trachoma were treated.

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The interest of the WHO is to combat the trachoma dates from before the 1950, from the time of the function of the organization. Special sections have been created, many conferences have been held by experts and study groups to consolidate the combat aided by the funds of the United Nations Organization of Childhood and Infancy (UNICEF). Primary sanitary education in schools was of great interest due to it’s effectiveness and low cost. Trachoma, in fact, is a simple problem, and the prevention is an easy task and of low cost. The disease transmission and the intensity of infectious have much variety depending on the affected community and the conditions of the disease transmission. In highly affected communities, the signs of active disease can be detected in children between 1-3 years while adult population demonstrate active or healed disease.

The severity of trachoma depends on many factors, especially the repetition of the infection, which tends to be high in low developing communities with low lead of hygiene. The complications and loss of Vision due to trachoma usually occur in the second decade of life, and they are more early and common in females.

The WHO recommended a program based on the use of antibiotics to prevent the ocular complications. Although it’s Known that the infectious diseases can be controlled by improving the standard of living than specific prevention programs. Yet this improvement doesn’t usually occur in uniform manner in low developing countries. The hyperendemic trachoma, in fact, is a great problem in the developing countries that have a dramatic population expulsion and at the same time the mortality rate is going down due to improved medical care. In these countries, the rate of trachoma inducing blindness is expected to increase in the future decades. In the past, trachoma was the most common cause of blindness in many developing countries. Now thanks to the economic improvement, educational and social changes, the intensity and gravity of the disease are going down. Any way, this disease is still forming a great problem in areas that did not take advantage of the recent changes, especially the rural areas of developing countries.

**Aim of work:**

This is a prospective study of the ocular pathologies in the region of Benghazi, with special attention to the incidence of blindness in which trachoma plays a very important role as a causative factor. We hope that this work can alert the attention of the social and health authorities in our country for future vast epidemiological studies that can be the base of prevention projections to combat the terrible incapacity of blindness.

**Methods:**

We studied prospectively 1450 patients of Libyan nationality, living in the province of Benghazi, Libya, that were visiting the ophthalmology clinic complaining, or for routine ophthalmic check ups, during the years 1993/1994. As central eye-clinic is free of charge public outpatient, the rest patients were seen in the Red Crescent clinic in a semi-centric district. This clinic is a low-fee clinic. All patients who were of other nationalities or living outside Benghazi were excluded for this study.

A file containing the presentation data, residence, and social economic based on the income was opened for every patient. (Table 1) Later on, a full ophthalmic examination was done following the order in the enclosed sheet. There are two waiting halls in the clinic for both sexes, equipped with necessary ophthalmic instruments (Sriellen Chart, Keeler Retinoscope, Haag-Streit Slit lamp, Keeler direct and indirect ophthalmoscopes).

It’s to be mentioned that all cases, except 140 who did not co-operate due to their young age, were examined for visual acuity. The used classifications of trachoma and visual acuity are demonstrated in (Table 1). A computer-spread sheet (Program Approach) was designed to register all data files. Every patient had a separate register identified by number, name and surname. The registered data were thoroughly revised and transferred to Excel program for data analysis. The SPSS program was used for statistical analysis. The age variable was classified in interval groups. The mean and standard deviation were calculated for quantitative data for qualitative variables, the frequency and selected crosses were done. Chi Square test was supplied for statistical significance calculation using P value<0.05 as the level of significance.
For the computer work, we used an IBM PC with the software: Approach, Excel, SPSS/PC+40 (Statistical Packet Social Science). Harvard Graphics program was used later on for graphic presentation.

Results: 
Table 2 demonstrates the structure of the studied population. Only 16 cases (1.1%) of the studied group had active trachoma, while trachomatous corneal opacities have been detected in 388 cases (26.8%), almost all of them were bilateral. Only one case had a unilateral opacity (fig. 1).

Table 2 also demonstrates different related variables and their statistical significance. A significant relationship between cicatricial trachoma and visual acuity, female sex, low socio-economic level and the rural areas were not noticed. Regarding the trachomatous complications (Trichiasis and corneal opacities), Table 2 also demonstrates the relation between these complications and visual acuity, age, socio-economic state and geographical zone. The apparent relation with sex is not statistically significant. This might be due to the incidence of the complications is much less than that of cicatricial trachoma.

Fig. 2-5 demonstrate all the studied statistical relations.

Discussion:
Trachoma is an endemic disease in Libya. Although the combat against the disease was very active from 1960s. Thanks to the WHO campaign, in which many Spanish colleagues had participated, and also due to the improvement of the socio-economic status of the urban zone in the last decades. Yet, we have to declare that cicatricial trachoma is forming an important part of the ophthalmic practice in Libya (Fig. 1), especially in females (Fig. 3) and in rural zones and in patients with low socioeconomic state (16;17). This result coincide with other authors.

In 1972, 97.8% of the population in south Libya were suffering from the disease, 44.7% had the active form of the infection. In comparison, 67.15 of the population in Sudan (34.2% with active form), 85.9% of the population of Syria, 60.4% of the population in Abu Dhabi (46.5% active form) and 65% of the population in Yemen (40% in active form). In Tunis, 25% of children at the school age had the disease, of which 85% had it in it’s active form. A higher incidence was repeated in females, most of them necessitate later on some form of entropion surgery due to cicatrization of the conjunctiva. This perfectly coincides with our results, although in our study it did not reach the significant level (Fig. 3).

Undoubtedly, this disease has severe consequences, 39.9% of our patients had some form of visual defect reaching to legal blindness. This is an indication that this pathology is a real problem in our population (Fig. 2).

In this study, only 1.1% of the patients had the clinical picture of active disease. This percentage is similar to the last work done by one of WHO experts in the same city, and the percentage found by other similar works, although it is less than the figures presented in other works.

Nevertheless, this does not coincide with the reported percentage of the cicatricial form of the disease which, unfortunately is very high in this work reaching 26.8%.

In the literature, we can find higher percentages recorded in countries that have similar or lower characteristics than others. On the other hand, 83 cases (5.7% of the total studied population or 21.3% of the patients having the disease) were suffering from same grade of trichiasis, 54 patients of whom were in need of some form of surgical intervention to correct the entropion.

Most patients with trichiasis were 46 years (89.2% of the total affected population). Females constituted 60.2% of the affected population compared to 39.8% that were males. This also coincide with other studies.

This incidence of the disease was more among those of low socio-economic state (98.8%) or residents of rural areas (63.9%). This was also confirmed statistically, although we were not able to confirm the cause of corneal opacity in some cases due to their uncertain history. Yet we can assure the existence of high incidence of this pathology among the residents of this city, as 136 patients (9.4%) of the studied population had some form of corneal opacity, 70% of them which were bilateral (Fig. 1).

Also, the influence of this pathology on the visual acuity was of the same importance. Between 1310 that we studied their V/A, 10.4% had same of corneal opacity, 55.1% of them had some form of visual acuity problems between defective vision (27.9%) and blindness (27.2%), 4.4% had no P.L. In literature, these figures coincide with those recorded by the WHO for Africa.
Corneal blindness depends on the regional characteristics, especially on the endemic diseases and ecological and climatic conditions.

Comparing our results with similar studies, we have to put in consideration that this work is a prospective clinic based one compared to the other works that are epidemiological ones on a determined population. Our results were similar to many works, lower than others and higher than some other works. According to our results, 96.3% of patients with corneal opacity were of low socio-economic sector as they were related to the lower or middle socio-economic sector according to the classification used in this work. 58.8% of the patients live in the rural zones, coinciding with other results, with these result, we can confirm that this pathology is more common in poor regions and of rural zones residents (Fig.4).

Regarding the sex distribution, the percentage was a little bit higher in females (55.1%), which is similar to other results, although we did not confirm this relation statistically. All these results highlight the existing defect in our country regarding ocular health. Not many years ago, Libya made great efforts in the medical field, regarding the medical infrastructure (new hospital construction, update diagnostic and therapeutic tools, etc). Nevertheless, with exception to the vaccination program developed by the health authorities, there was no improvement regarding the preventive field. The deficiency in specialized clinics in the rural zones is very worrying. The population in these zones can have these services only on duty hours in the city of Benghazi, which put an economic burden on these people, as they have to go to private clinics in the afternoon.

For the above reasons, this work has been planned to enable us to identify the frequent pathologies in our ophthalmic clinics in this city.

Fig. 2: Visual acuity in cicatricial trachoma in relation to the studied population.
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Fig. 3: Sex distribution in relation to different pathologies.

Fig. 4: Socio-economic state in relation to the pathologies.
Fig. 5: Geographic zone in relation to the pathologies.

References:
17. KLAUSS V.: Ocular diseases in childhood in third world countries. LUND 0. E.,