Risk factors for pterygium in Cambodian people.

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Introduction*: Pterygium is one of the most common eye diseases around the world especially in Aasia. Many studies on pterygium show that residence; age, race, sex, sunlight exposure, and education level were with risk for pterygium. Currently, the exact the pathogenesis of pterygium remains unclear, however the number of people working in agriculture related fields and regions are seen with a much higher risk of developing pterygium .*

Objective: *To determine the risk factors for pterygium in a group of Cambodian people.*

Materials and Methods: *Data were analyzed from 183 participants, in Preah Ang Doung Hospital and Takeo Eye Hospital, age ranged from 20-80 years old. Participants were asked to answer a questionnaire related to their everyday activities.*

Results*: Males were affected more than females. The most affected age range was 50-59 years old. The participants who live and work in rural areas were more populated with pterygium than that from the cities. More than 70% of the participants never have protection during work.*

Conclusion: *Pterygium was positively associated with older age and outdoor time and use of hat and/or sunglasses.*

Keywords: *pterygium, risk factors, outdoor time, sunlight exposure*

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Introduction

Pterygium is a fibrovascular external disease of the globe involving the cornea. The wedge-shaped lesion usually found overhanging the nasal , temporal or rarely both side of the limbus and is directed centrally, give rise to many visual problem such as astigmatism or blindness if interfere with visual axis and can sometimes be a cosmetic complain. Treatment is consider because of these factors above and techniques have been modified over the years. As an external ocular disorder, "Pterygium" is commonly seen with a global prevalence of 0.7% to 33%.[1] About 30% to 90% of recurrences are seen after excisional surgery.[2] It is seen that a number of theories have proven the pathogenesis involving genetic, environmental, infective and immunological factors.[3] The exact etiology of pterygium still cannot be well explained although ultraviolet radiation (UVR) is a hypothetical risk factor that has been well studied before.[4] However, the risk factors for pterygium in Cambodia have not been sufficiently investigated. Since the majority of Cambodians work in agricultures and are highly exposed to sunlight, it would be interesting to study about how work fields correlate with the risk of developing pterygium.

Objectives

This study was performed to provide informative resources of pterygium related to work and their protection. It aims to study the risk factor of pterygium related to age, sex, geographic area, working time exposure to sunlight and their protection.

Materials and Methods

This study was a retrospective, hospital based study on pterygium in people aged from 20 to 80 years who receives the ophthalmic examination from January to June 2015 at Preah Ang Doung Hospital and Takeo Eye Hospital. The total population of the Study was 183. After the consultation, patients were asked to answer a questionnaire related to their everyday work. Questionnaire consists of: Age, Location, Occupation, Duration of sunlight exposure per day, and Protection against sunlight, which were taken at time of first consultation as a routine history taking for every patients. The Data was analyzed using Microsoft Excel for Mac 2008 version 12.0 (071130).

Result

The majority of patients studied were aged from 50-59 years (21.41%) which is an active age of doing outdoor activities. About 13.66% were 70-79 years which are senior therefore limit their work ability. There was a predominance of Male patients: 107 (58.47%) of the total 183 being male versus 76 (41.53%) being female. Most of the patients are from Phnom Penh (19.87%) and Takeo Province (37.15%). Subsequently if we compare city to provincial residence in percentage it equals to City (19.87%) and Provenance (80.13%)

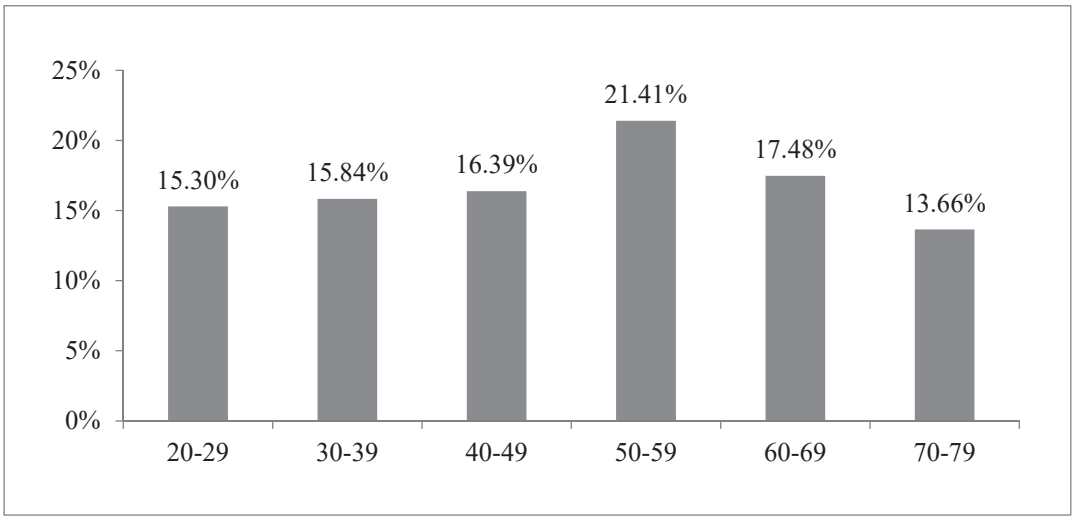

Figure 1: Age Distribution of Pterygium prevalence based on the average working age and sunlight exposure

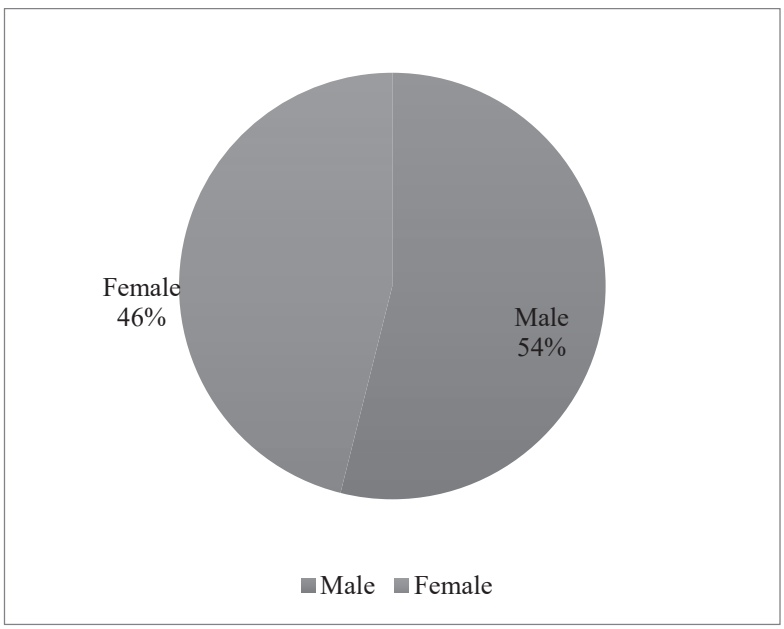

Figure 2: Sex Distribution

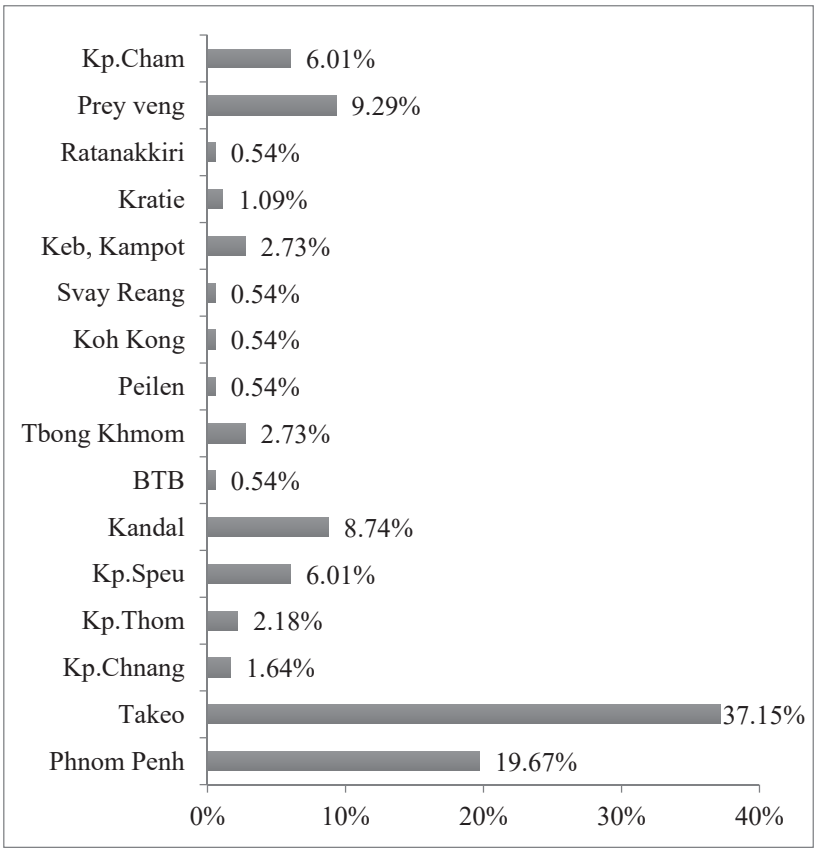

Figure 3: Provenance Distribution

Among all the population in the study, 61.2% of them *always* work under the sunlight or high exposure to the sunlight. 24.59% rate their work with *often* and 14.2% s*ometimes* work with sunlight exposure.

70.49% of the patients didn't have any protection during work. Whereas 3.82% can protect their eye from the sunlight and 25.68% can sometimes protect their eye with sunglasses or hat.

Work related to Sunlight exposure	Number	Percentages
Always	112	61.2%
Often	45	24.59%
Sometimes	26	14.2%

Table 1: Work related to sunlight Exposure

Sunglasses/Hat	Number	Percentages
Always	7	3.82%
Never	129	70.49%
Sometimes	47	25.68%

Table 2: Protection from sunlight with sunglasses or hat

Discussion

The results of this survey were in accordance with the notion that the prevalence of pterygium increased with age and it may be attributed to the accumulated sunlight exposure. In this survey, participants aged between 50 and 59 years had the highest prevalence of 21.41%, followed by the group of 60-69 years with a prevalence of 17.48%. The slightly lower pterygium prevalence in participants aged 80 years or above may be ascribed to a smaller sample size of 183 people. 4,564 people were studied by Fotouhi and results showed that pterygium prevalence increased by 0.1% in younger people aged from 1-19 years old to about 7.8% in the group older than 60 years old.[5] Another study was done in Indonesia,[6] revealed that there is a significant prevalence increase all around in all the different age group, ranging from 2.9% in people under 30 years old to 17.3% in people over 50 years old.

However associating gender as a risk factor is still controversial. Previous studies in Doumen County[7] suggest that women are at higher risk compared to men. However other studies have shown the opposite, as men are more prone to developing pterygium than women.[8] In the present study, the prevalence is slightly higher in men than that of women but not significantly different. The reason for a nearly equal sex distribution is that, in order to improve their economic status, women have to do outdoor farming work rather than staying at home and depend on men as the sole breadwinner of the family.

In the provinces, the majority of residents take part in outdoor farming work and agricultural income is the exclusive economic source for their family. In our study, the prevalence of the patient who lives in the province (80.33%) is much higher than that of the people in the city (19.67%).

In the present study, outdoor work time is association with increased risk of developing pterygium. A large number of participants were occupied with working activities under the sunlight and they spent most of their day time outdoors. In accordance with the Barabasos Eye Study[9] and Rosenthal,[10] we agreed that UV radiation exposure increase pterygium prevalence and protection such as sunglasses and/or hats can prevent the disease. In our current studies we saw that the higher the exposure time to sunlight the higher this risks are and protection could also help reduce the incident of pterygium. Therefore these two factors should play a key role in providing us details of the risk factors of pterygium in correlation with work. How it protects and prevents eyes from pterygium rate is hypothetical but blocking of UVR and dust should be

important factors.[11] Therefore, people using hats or sunglasses had lower prevalence of pterygium. However, because a large proportion of the population depend on working outside for a living and sunlight exposure is inevitable, getting protection like hats and especially sunglasses is key in preventing as well as reducing the prevalence of pterygium.

The limitation of our study included the characteristics of a hospital-based approach; small sample size and the severity of pterygium were not recorded during the survey. Regarding the UVR exposure, which may be the main cause for pterygium, was estimated by outdoor time in a questionnaire, rather than an objective measurement. Finally, not all the refractive statuses of participants were available in this study; the relationship between pterygium and astigmatism was unsure.

Conclusion

In conclusion, pterygium was positively associated with older age and outdoor time and use of hat and/or sunglasses. Because severe pterygium can result in visual impairment and blindness, it is important to take some preventive measures to diminish the prevalence of pterygium, such as suggesting people wear a hat and/or sunglasses whenever they are outside in the sunshine, educating farmers to raise their awareness for pterygium, and providing surgery service when pterygium is diagnosed. We hope that every effort will be taken to avoid the blindness caused by severe pterygium.

Conflict of Interests

The authors declare that there is no conflict of interests regarding the publication of this paper.

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