INTRODUCTION

Vernal kerato-conjunctivitis (VKC) is an infrequent but serious form of allergic conjunctivitis common in warm and humid areas where air is rich in allergens. It affects both eyes asymmetrically. Although VKC is a self-limiting disease but visions affecting corneal complications influence the quality of life in school children. The aim of this study was to list the corneal complications due to this condition and to find out the extent of visual impairment among VKC patients. **Methods:** This cross-sectional study was conducted in the department of Ophthalmology, Benazir Bhutto Shaheed Hospital on 290 eyes of diagnosed cases of VKC. The diagnosis of VKC was made on the basis of history and examination. Visual acuity was recorded using Snellen’s notation and visual impairment was classified according to World Health Organization classification for visual disabilities. **Results:** The mean age of presentation was 10.83±6.13 years. There were 207 (71.4%) males and 83 (28.6%) females. Corneal scarring was observed in 59 (20.3%) eyes. Keratoconus was found to be in 17 (5.9%) eyes. Shield ulcer was detected in 09 (3.1%) eyes while 07 (2.4%) eyes had corneal neovascularization. Majority of the patients with visual loss had corneal scarring and the complication that led to severe visual loss in most of the eyes was Keratoconus. **Conclusion:** Vernal kerato-conjunctivitis in the presence of corneal complications is a sight threatening disease and can lead to severe visual impairment. **Keywords:** Vernal kerato-conjunctivitis; Corneal complications; Visual impairment

MATERIAL AND METHODS

This cross-sectional study was conducted in the department of Ophthalmology, Benazir Bhutto Shaheed Hospital from 01.11.2013 to 01.11.2014 after approval from Hospital’s Ethical Committee. The study was done on 290 eyes of diagnosed cases of VKC. Selection was done using Non-probability convenient sampling. The diagnosis of VKC was...
made on the basis of history (redness, itching and watering) and examination (Papillary hypertrophy, limbal thickening, and limbal pigmentation). These findings were recorded on a specifically designed Proforma that included age, gender, presenting complaints, and examination of the patient. Visual acuity was recorded using Snellen’s notation and visual impairment was classified according to World Health Organization classification for visual disabilities. Clinical signs and complications were notified after slit lamp bio-microscopy of each patient. Intraocular pressure was measured by application tonometer and keratometry was done to find out keratoconus. Patients with other types of allergic conjunctivitis, contact lens induced conjunctivitis; cataracts and steroid induced glaucoma were excluded from the study. All above mentioned data was stored and analysed into SPSS version 16.00. Mean±Standard deviations were calculated for numerical variables like age. Frequencies and percentages were calculated for categorical variables like gender, corneal complications and visual impairment.

### RESULTS

This study was done on 290 eyes. The mean age of presentation was 10.83±6.13 years. The youngest patient was 03 years old and oldest was 48 years old.

There were 207 (71.4%) males and 83 (28.6%) females.

Conical scarring was observed in 59 (20.3%) eyes. Keratoconus was found to be in 17 (5.9%) eyes. Shield ulcer was detected in 9 (3.1%) eyes while 7 (2.4%) eyes had corneal neovascularization.

The assessment of visual loss was done on the basis of WHO classification for visual impairment. In our study, there were 45 eyes that had mild visual loss, 38 eyes had moderate visual loss while only 9 eyes had severe visual loss.

When we compared the visual loss with corneal complications, we found that majority of the patients with visual loss had corneal scarring and the complication that led to severe visual loss in most of the eyes was Keratoconus.

### DISCUSSION

This study was conducted on 290 eyes with vernal kerato-conjunctivitis. Vernal kerato-conjunctivitis usually starts at the age of 3 years and when the patients reach puberty the symptoms and signs regress in 95%. However, 5% of the patients can have the disease even after puberty. In our study, youngest patient was 3 years old and oldest was 48 years old.

The mean age of presentation was 10.83±6.13 years. A study conducted by Saboo in India found mean age of presentation to be about 12 years, while there were 12% of patients whose age was above 20 years. In a hospital based study conducted by Shafig, noted that 6% of the patients were above 20 years and Leonardi reported about 4%.

Vernal kerato-conjunctivitis affects boys more commonly than girls. In our study there were 207 males and 83 females with male to female ratio of 2.49:1. In the study conducted by Saboo there were 405 males and 63 females with M:F ratio of 6.4:1. Leonardi and co-workers found M:F ratio between 3.3 and 3.5. Ukponmwan reported M: F ratio of 1:1.3 from Nigeria. M:F ratio in our study is higher and it shows similarity with the global values.

In most of the studies male to female ratio was between 4:1 and 2:1.

Vernal kerato-conjunctivitis is a recurrent disorder which shows seasonal variations. It tends to affect children during early spring and late summer season. In our study the highest numbers of patients were found in the month of May and June was the second highest month. Saboo and co-workers also found a higher incidence in the month of May.

Sometimes patients with vernal kerato-conjunctivitis present with complications like corneal scarring, Keratoconus, shield ulcer, and corneal neovascularization. Although the frequency of these complications is not very high but they can cause mild, moderate, and severe visual loss which affects the quality of life among school children and so their learning abilities as well. In our study about 20.3% eyes developed corneal scarring, 5.9% eyes developed Keratoconus, while 3.1% eyes and 2.4% eyes developed shield ulcer and corneal neovascularization respectively. Saboo found corneal scarring in 11% of patients, shield ulcers in 3%, Keratoconus in 6.2% and corneal neovascularization in 7.26%.

The assessment of visual loss was done on the basis of WHO classification for visual impairment.

### Table-1: Frequency distribution of corneal complications with visual impairment

<table>
<thead>
<tr>
<th>Corneal Complications</th>
<th>Frequency</th>
<th>Visual Impairment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Corneal Scarring</td>
<td>59 (20.3%)</td>
<td>231 (79.7%)</td>
</tr>
<tr>
<td>Keratoconus</td>
<td>17 (5.9%)</td>
<td>273 (94.1%)</td>
</tr>
<tr>
<td>Shield Ulcer</td>
<td>9 (3.1%)</td>
<td>281 (96.9%)</td>
</tr>
<tr>
<td>Neovascularization</td>
<td>7 (2.4%)</td>
<td>283 (97.6%)</td>
</tr>
</tbody>
</table>

The assessment of visual loss was done on the basis of WHO classification for visual impairment.
impairment. There were 35 (14%) eyes that had mild visual loss, 21 (60%) eyes that had moderate visual loss and 3 (60%) eyes that had severe visual loss secondary to corneal scarring. Keratoconus led to mild visual loss in 3 (1.2%) eyes, moderate visual loss in 9 (25.7%) eyes, and severe visual loss in 5 (100%) eyes. The visual loss secondary to shield ulcer and corneal neovascularization is shown in Table 3. Saboo found visual loss of <20/50 in 12% of patients while 3.44% were noted to have a visual acuity <20/200. It can be observed from the table I that 59 (20.3%) eyes developed corneal scarring, and 17 (5.9%) eyes developed Keratoconus. However, when we compared these complications with visual loss we found that the complication that led to severe visual loss in most of the eyes was Keratoconus while in a study conducted by Bonini in London noticed permanent visual loss in 6% patients was due to corneal scarring.

CONCLUSION

Vernal keratoconjunctivitis in the presence of corneal complications is a sight threatening disease and can lead to severe visual impairment.

AUTHORS' CONTRIBUTION

ASA, BA: Data collection & Data analysis. AS, ZN: Statistical analysis. UF: Study design.

REFERENCES