Prevalence of Bacterial Conjunctivitis and Allergic Conjunctivitis in Pakistan

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ABSTRACT
Objective: To find the prevalence of bacterial conjunctivitis and allergic conjunctivitis in Pakistan.
Study Design: Prospective study
Place and Duration of Study: Department of Ophthalmology, People Medical College Hospital Nawabshah from 1st January 2019 to 30th June 2019.
Methodology: One hundred patients age between 8-15 years were enrolled depending upon their clinical symptoms of conjunctivitis. Each patient sample was then taken though conjunctival swab test and sent to laboratory for confirmation. Allergic conjunctivitis and bacterial conjunctivitis were identified with slit lamp examination, while Allergic conjunctivitis was confirmed through presence of the papillae in the upper portion of the tarsal conjunctiva correlating with the clinical symptoms of the patient.
Results: The mean age of the patients was 13.3±3.4 years. The allergic conjunctivitis was observed in 18.18% of total examined cases while 12.72% had bacterial conjunctivitis. The odds ratio between boys and girls with 95% Confidence interval showed no significant variance between allergic conjunctivitis and bacterial conjunctivitis patients. Within the bacterial conjunctivitis positive cases majority of the patients suffered from staphylococcus aureus followed by hemophilic influenzae.
Conclusion: Significant cases of allergic and bacterial conjunctivitis were found.
Keywords: Allergic conjunctivitis; Bacterial conjunctivitis; Children; Vision Impairment

INTRODUCTION
Allergic conjunctivitis (AC) and bacterial conjunctivitis (BC) are increasing in their frequency with coming era. Many factors have been associated with the ascending burden of these conditions. These includes environmental factors, unhygienic habits.1,2 Children as well as adults are victim of degraded environment.

Although more of the children suffers from AC and BC as being prone due to extra influx during play times and school activities. Bacterial conjunctivitis has been reported to cause vision impairment while AC has not been associated with vision loss.

However, it is still very important to completely manage or treat AC for healthy eye.

Saraçlar et al.3 have reported the estimated prevalence of AC as 4.6% while other study reported the prevalence of 10%.4 The prevalence of BC on the other hand is reported as 4% in developing countries. BC has been majority link with unhygienic influx of the eye, where majority of the children rub their eye with dirty hands and fingers causing the bacteria to enter the epithelium.5,6

The frequency of AC and BC has been reported higher in rural settlers than in urbane life. Mongolian research also highlighted 9.3% living in urban areas were having AC while 12.9% of those living in villages were suffering from AC or BC. Nigerian research has also reported same findings.6,7 Pakistani environment is suffering from severe decline in air index value resulting in higher pollutants.10 The present study was meant to address this problem and identify the prevalence of AC and BC. This study will be helpful in better understanding of conjunctivitis and its magnitude in Pakistan which can assist in future improved health outcomes.

MATERIALS AND METHODS
It was a prospective study design conducted at People Medical College Hospital Nawabshah from 1st January 2019 to 30th June 2019. The study was approved from Institutional Review Committee prior its initiation. Patients were included as study participants after their consent or the consent of their parent/guardian. Patients were included as research participants post their visit to OPD eye. The age of the patients was 8-15 years. A total of 100 patients within the above mentioned age were enrolled depending upon their clinical symptoms of conjunctivits including pink eye, itchy ness, pain in the corneal region, photophobia and watery eye. Each patient sample was then taken though conjunctival swab test and sent to laboratory for confirmation. AC and BC were identified with slit lamp examination. Bacterial growth and type was observed through the use of various antibiotics. While Allergic conjunctivitis were confirmed through presence of the papillae in the upper portion of the tarsal conjunctiva correlating with the clinical symptoms of the patient.

The demographic information, gender, clinical symptoms, hygiene history was entered in the proforma. Data was analyzed through SPSS version 24.0 using Chi square test for analyzing frequency and percentages and odds ratio while mean and standard deviations for analyzing numerical data. P value <0.05 was taken as significant.

RESULTS
The mean age of the patients was 13.3±3.4 years. The allergic conjunctivitis was observed in 18.18% of total examined cases while 12.72% had bacterial conjunctivitis. The odds ratio between boys and girls with 95% Confidence interval showed no significant variance between allergic conjunctivitis and bacterial conjunctivitis patients. Within the bacterial conjunctivitis positive cases majority of the patients suffered from staphylococcus aureus followed by hemophilic influenzae.

Table 1: Comparison of age in allergic and bacterial conjunctivitis

<table>
<thead>
<tr>
<th>Age (years)</th>
<th>Allergic Conjunctivitis</th>
<th>Bacterial Conjunctivitis</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cases Examined (n=55)</td>
<td>Positive</td>
<td>Cases Examined (n=45)</td>
</tr>
<tr>
<td>8-10</td>
<td>23</td>
<td>2 (8.69%)</td>
<td>20</td>
</tr>
<tr>
<td>11-15</td>
<td>12</td>
<td>4 (20%)</td>
<td>15</td>
</tr>
<tr>
<td>Total</td>
<td>55</td>
<td>10 (18.18%)</td>
<td>45</td>
</tr>
</tbody>
</table>

Within the BC positive cases majority of the patients suffered from staphylococcus aureus followed by hemophilic influenzae.
Rest of the bacterial types were found with almost similar frequency (Fig 1).

Table 2: Odds ratio between boys and girls with AC and BC

<table>
<thead>
<tr>
<th>Gender</th>
<th>Allergic Conjunctivitis (n=10)</th>
<th>Bacterial Conjunctivitis (n=7)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys</td>
<td>6</td>
<td>1.32</td>
</tr>
<tr>
<td>Girls</td>
<td>4</td>
<td>1.91</td>
</tr>
</tbody>
</table>

P=0.16

CONCLUSION

Bacterial and allergic conjunctivitis is highly prevalent among children. Possible explanation of this fact is that, air pollution could be the main cause and also they had greater exposure time

REFERENCES

1. Downs SH, Marks GB, Sporik R, Belosouva EG, Car NG, Peat JK. Continued increase in the prevalence of asthma and atopy. Arc Dis Child 2001; 84: 20-3