Introduction

Retinopathy of prematurity (ROP) is a vasoproliferative disorder of premature retina. It is one of the leading causes of childhood blindness. It is estimated that there are about 50,000 children blinded by ROP. Prematurity, extreme low birth weight (LBW) and supplemental oxygen therapy are widely accepted risk factors of this blinding disease. But there are many more risk factors that contribute in its pathogenesis. Genetic susceptibility, anaemia, sepsis and mechanical ventilation are attributed to its development.

As a result of increased survival of premature neonates, ROP is on the rise. Depending on the resources available for screening and treatment of ROP, the number of premature babies developing blinding complications is different in different healthcare systems. Pakistan, a developing country, has shown improvement in neonatal care, especially in large cities. With the survival of premature and LBW neonates, there is a rise in ocular morbidity as a sequel of ROP. Screening of neonates at risk is the key for timely detection and appropriate treatment of this blinding condition. Thus not only the child has better life, but also the society has less social and economic burden.

The current study was planned to evaluate the features of premature babies at risk of developing ROP, as well as screening programme at our health facility for the detection of ROP.

Subjects and Methods

The cross-sectional study was conducted from April 2010 to October 2013 at the ophthalmology department of Hameed Latif Hospital, a tertiary care teaching hospital in Lahore, after obtaining institutional approval. Those included were children born with birth weight less than 2000 g, gestational age less than 37 weeks, or those who were considered high risk for Retinopathy of Prematurity.Variables recorded included history, birth weight, gestational age, oxygen supplementation, development of Retinopathy of Prematurity, and laser treatment. Data was analysed using SPSS 17.

Results: There were 285 neonates in the study with a mean birth weight of 1280.34 ± 350.43 g and mean gestational age being 29.38 ± 3.14 weeks. Overall, 167 (58.6%) received supplemental oxygen, 86 (30.2%) were anaemic and 44 (15.4%) received blood transfusion. Besides, 47 (16.5%) premature babies were product of multiple gestation, 34 (11.9%) were having respiratory distress, 25 (8.8%) had sepsis and received intravenous antibiotics, 70 (24.6%) developed Retinopathy of Prematurity, and 22 (7.7%) developed threshold disease and received laser treatment at mean gestational age of 32.11 ± 2.53 weeks.

Conclusion: Screening is key to preventing childhood blindness caused by Retinopathy of Prematurity. Prematurity, low birth weight and supplemental oxygen therapy are significant risk factors for the condition.

Keywords: Gestational age, Premature, Retinopathy of Prematurity. (JPMA 65: 156; 2015)
with no signs of ROP and who showed complete vascularisation of retina were released from follow-up. Newborns who showed ROP but no signs of threshold disease were followed up at 1 week, 2 weeks, 4 weeks and 8 weeks to keep an eye on possible signs of threshold disease and treatment administration accordingly.

**Results**

There were 285 neonates in the study with a mean birth weight of 1280.34±350.43g and mean gestational age being 29.38 ± 3.14 weeks. There were 171(60%) boys and 114(40%) girls. Overall, 167(58.6%) received supplemental oxygen. Of them, 122(42.8%) babies received it for one week or less, while 45(15.8%) received it for more than a week. Besides, 86(30.2%) premature babies were anaemic, 44(15.4%) received blood transfusion, 22(7.7%) were given ventilator support for one day, 12(4.2%) were given ventilator support for more than a day, 47(16.5%) were product of multiple gestation, 34(11.9%) were having respiratory distress, 25(8.8%) had sepsis and received intravenous antibiotics, 70(24.6%) developed ROP, and 22(7.7%) developed threshold disease and received laser treatment at mean gestational age of 32.11±2.53 weeks (Table).

**Table:** ROP distribution in different gestational age and birth weight groups.

<table>
<thead>
<tr>
<th>Development of ROP</th>
<th>Group of birth Weight</th>
<th>Group of gestational age</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Less than 26 weeks</td>
<td>26 to less than 30 weeks</td>
<td>30 to 32 weeks</td>
</tr>
<tr>
<td>Yes</td>
<td>less than 751g</td>
<td>15 (5.26%)</td>
<td>5 (1.75%)</td>
</tr>
<tr>
<td></td>
<td>751g to 1000g</td>
<td>0 (0%)</td>
<td>24 (8.42%)</td>
</tr>
<tr>
<td></td>
<td>1001g to 1500g</td>
<td>0 (0%)</td>
<td>14 (4.91%)</td>
</tr>
<tr>
<td></td>
<td>more than 1500g</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>15 (5.26%)</td>
<td>43 (15.08%)</td>
</tr>
<tr>
<td>No</td>
<td>less than 751g</td>
<td>10 (3.50%)</td>
<td>3 (1.05%)</td>
</tr>
<tr>
<td></td>
<td>751g to 1000g</td>
<td>0 (0%)</td>
<td>24 (8.42%)</td>
</tr>
<tr>
<td></td>
<td>1001g to 1500g</td>
<td>0 (0%)</td>
<td>70 (24.56%)</td>
</tr>
<tr>
<td></td>
<td>more than 1500g</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>10 (3.50%)</td>
<td>97 (34.03%)</td>
</tr>
</tbody>
</table>

ROP: Retinopathy of Prematurity.

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In our study, 70(24.6%) newborns developed ROP and 22(7.7%) developed threshold disease and received laser treatment. Similar results were observed by other studies. Besides, 68 infants who developed ROP had birth weight less than 1500g and gestational age less than 32 weeks. While there were 2 infants with better birth weight and more gestational age who, developed ROP, but they did not develop threshold disease.

LBW and gestational age are considered to be the most important risk factors for ROP development. Other risk factors that we could identify in our study included supplemental oxygen therapy, mechanical ventilation, anaemia, blood transfusion and sepsis.

Screening criterion in our hospital appears to be reasonable as no infant with ROP was missed. However, since it was a single-centre study, its results cannot be generalised. Different hospitals may have different screening protocols and, as such, our results may not be applicable to other healthcare facilities. In Pakistan, little work is done on ROP. Moreover, in rural and semi-urban
regions of the country, there is little awareness about the disease not only among the general healthcare physician, but also paediatricians and ophthalmologists. We emphasise the need of neonatal screening for ROP in high-risk group so that timely treatment may save a child from catastrophic consequences of untreated ROP.

**Conclusion**

Screening is key to preventing childhood blindness caused by ROP. Prematurity, LBW and supplemental oxygen therapy are significant risk factors for the development of ROP.

**References**