Prevalence of Diabetic Retinopathy in Srinagarind Hospital

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INTRODUCTION

- Diabetes mellitus in all age groups worldwide was estimated to be 9% among adult aged (343 million people).1 (2013)
- Diabetic retinopathy is an important cause of blindness, about 1% of global blindness can be attributed to diabetes.2
- The overall global prevalence of Diabetic retinopathy was 34.6%.3

OBJECTIVE

- This study aim to report the prevalence of diabetic retinopathy in Srinagarind Hospital

MATERIALS AND METHODS

- The study was approved by the Khon Kaen University Ethics Committee for Human Research (HE 571059)
- Hospital-based retrospective review
- Total 1882 patients were included

Total 1882 patients were selected from computer data based ICD10 (E11.3 type 2 diabetes mellitus with ophthalmic complications or H360 diabetic retinopathy) in 2013

Exclude 1475 patients due to missed match in diagnostic date

Select 1st diagnosis of diabetic retinopathy in Srinagarind Hospital

407 patients were calculated

Lab and medication were collected within 3 months before and after the diagnosis
OUTCOMES

- Baseline characteristics
  - Gender, Age
  - Diabetic duration
  - Blood pressure
  - FPS, HBA1C, Lipid profiles, Serum creatinine level
  - Medication: Insulin used
  - Underlying disease
  - Visual acuity
- Staging of Diabetic retinopathy

RESULTS

- The medical records from 407 patients were reviewed

BASELINE CHARACTERISTICS

<table>
<thead>
<tr>
<th>Mean ± SD</th>
<th>Gender, male (181 pts)</th>
<th>Insulin use (137 pts)</th>
<th>Visual acuity (193 pts)</th>
<th>HT (177 pts)</th>
<th>DL (66 pts)</th>
<th>CKD (37 pts)</th>
<th>CVD (14 pts)</th>
<th>Stroke (11 pts)</th>
</tr>
</thead>
<tbody>
<tr>
<td>44.5</td>
<td>8</td>
<td>11.5</td>
<td>43.5</td>
<td>16.2</td>
<td>9.1</td>
<td>3.4</td>
<td>2.7</td>
<td></td>
</tr>
</tbody>
</table>

Prevalence of Diabetic Retinopathy in Srinagarind hospital was 16.61% (at least)

- Referral cases 52.1% (from 387 pts)
  - Khon Kaen regional hospital 9.62%
  - Kalasin Hospital 6.63%
  - Roiet Hospital 6.45%
  - Udon Thani Hospital 3.35%
  - Others 25.85%
FPS, Creatinine, HBA1C and LDL level were not associated with severity of diabetic retinopathy

**Independent Sample Kruskal-Wallis Test**

<table>
<thead>
<tr>
<th></th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>FPS</td>
<td>0.906</td>
</tr>
<tr>
<td>Creatinine</td>
<td>0.073</td>
</tr>
<tr>
<td>HBA1C</td>
<td>0.815</td>
</tr>
<tr>
<td>LDL</td>
<td>0.397</td>
</tr>
</tbody>
</table>

Insulin administration and FPS range were not associated with severity of disease $\chi^2 p = 0.100$

<table>
<thead>
<tr>
<th>FPS range (276 pts)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>70 – &lt;130</td>
<td>41.70</td>
</tr>
<tr>
<td>130 – &lt;200</td>
<td>33.70</td>
</tr>
<tr>
<td>≥ 200</td>
<td>23.90</td>
</tr>
<tr>
<td>Missing Data (131 pts)</td>
<td>32.20</td>
</tr>
</tbody>
</table>

No association between FPS and staging of Diabetic Retinopathy ($p = 0.105$)

**Stage of DR were associated with DME ($p<0.01$)**

Creatinine, HBA1C, FPG and LDL were not associated with DME

**Independent Samples Mann-Whitney U Test**

<table>
<thead>
<tr>
<th></th>
<th>p</th>
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<tbody>
<tr>
<td>Creatinine</td>
<td>0.749</td>
</tr>
<tr>
<td>HBA1C</td>
<td>0.520</td>
</tr>
<tr>
<td>FPS</td>
<td>0.759</td>
</tr>
<tr>
<td>LDL</td>
<td>0.649</td>
</tr>
</tbody>
</table>

DISCUSSION

Prevalence rate of diabetic retinopathy was less than previous studies

<table>
<thead>
<tr>
<th>Study</th>
<th>Duration of diabetic years</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Our study</td>
<td>233 pts</td>
<td>60.0%</td>
</tr>
<tr>
<td>Chiangmai¹</td>
<td>1990</td>
<td>19.70</td>
</tr>
<tr>
<td>Siriraj²</td>
<td>2006</td>
<td>31.2%</td>
</tr>
<tr>
<td>TDR project³</td>
<td>2003</td>
<td>31.4%</td>
</tr>
<tr>
<td>Khon Kaen⁴</td>
<td>1992</td>
<td>25.1%</td>
</tr>
</tbody>
</table>

All studies were performed in tertiary care hospital, but the different eligibility criteria


Proliferative diabetic retinopathy

Sriraj reported 19.75 % in PDR group

Thailand Diabetes Registry Project 2003 (11 tertiary centers) reported 29.92 % in PDR group

Our study reported 60% in PDR group

This maybe explained by Srinagarind hospital is a referral center from all northeast area
Duration of diabetes

- The WEIDR reported that duration of diabetes was directly associated with an increased prevalence of diabetic retinopathy.
- Muhammad Khizar Niazi, et al. showed that duration of diabetic retinopathy associated with severity of diabetic retinopathy.
- In contrast, our study showed that duration of diabetic not associated with severity of diabetic retinopathy.
- The possible explanations:
  - Limited number of patients
  - The referred cases were mostly advanced stage DR

LIMITATIONS

- Data were collected only from computer-based and electronic medical record.
- Retrospective design.
- Loss of data in medical records.
- ICD10 was coded by human which might be unreliable.
- Limited number of the patients.

CONCLUSION

- Proliferative diabetic retinopathy was commonly found in Srinagarind hospital.

SUGGESTIONS

- Data collection system should be improved to provide adequate information for the study in future.
- Due to the severe stage of DR in diabetes, the caring system should be improved.

Thank you.