Incidence and Seasonal Variation of Severe Preeclampsia at Aswan University Hospital, One Year Study

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Abstract

Background: Hypertension complicates an estimated 6-8% of all pregnancies. There are genuine differences in the incidence of hypertensive disorders of pregnancy in the populations. Serial measurements of blood pressure in each country showed remarkable similar levels early in the second trimester but a divergence there after there are genuine differences in the incidence of hypertensive disorders of pregnancy in the populations and that these are not caused by underlying differences in the base line blood pressure in the populations.

Methods: A list of patients that had severe preeclampsia admitted to Aswan University Hospital from January 1/2013 to December 31/2013. The case notes was retrieved from the Medical Records Department in the form of data relating to the age, parity, gestational age, method of termination, perinatal outcomes, and related maternal complications.

Results: There were 4284 deliveries during the period. Under review among them 234 patients with preeclampsia with incidence 5.46%, the age of the patients range from 18-47 years with average age 32.5 year. There was seasonal variation the largest numbers of patients with preeclampsia were in August 32 patients with incidence (13.67%), the least were January with 11 patients (4.70%).

Conclusions: There is a high incidence of preeclampsia at Aswan university hospital and there is seasonal variation more in summer than winter.

Key Words: Incidence – Seasonal variation – Severe preeclampsia – Aswan University.

Introduction

PREECLAMPSIA is a Pregnancy Induced Hypertension (PIH) of unknown etiology. Preeclampsia can be quite serious as it can lead to various complications both for the mother and the baby [1].

In fact preeclampsia and eclampsia, sever forms of PIH, are the leading cause of infant and maternal death [1].

Hypertension complicates an estimated 6-8% of all pregnancies. There are genuine differences in the incidence of hypertensive disorders of pregnancy in the populations [1].

Though the cause for preeclampsia is unknown, there appear to be certain risk factors associated with the condition. The factors that have been postulated to influence the risk of preeclampsia among the mothers include diabetes, obesity, multiple pregnancy, primiparity, age, personal or family history of preeclampsia, and chronic hypertension [2-5].

Serial measurements of blood pressure in each country showed remarkable similar levels early in the second trimester but a divergence there after there are genuine difference in the incidence of hypertensive disorders of pregnancy in the populations and that these are not caused by underlying differences in the base line blood pressure in the populations [6].

Previous studies suggest that the occurrence of preeclampsia is seasonally distributed [7].

Material and Methods

A list of patients that had severe preeclampsia admitted to Aswan University Hospital from January 1/2013 to December 31/2013. Diagnosed by (systolic blood pressure 160 or more and/or diastolic blood pressure 110 or more in two occasion four hours apart in semi setting position plus 24hrs protein collection in urine 5 gram or more).

The case notes was retrieved from the medical records department in the form of data relating to the age, parity, gestational age, method of termination, perinatal outcomes, and related maternal complications.
The data was entered in the computer for statistical analysis using one proprietary statistical package which is Statistical Packages for the Social Science (SPSS).

Results

There were 4284 deliveries during the period. Under review among them 234 patients with preeclampsia with incidence 5.46%, the age of the patients range from 18-47 years with average age 32.5 year (Table 1).

As regard the patient’s parity primigravida represents 72 patients (31.16%) and grand multi-paras (delivered five times or more) were 37 patients represent (15.81%) patients (Table 2).

The gestational age were ranged from 25 weeks to 41 weeks.

About the methods of termination 56 were delivered by caesarean section with incidence (64.95%) and 82 patients terminated by vaginal delivery with incidence 35.04% (Table 3).

About the complications of preeclampsia HELLP syndrome one patient (0.42%), accidental hemorrhage were 4 patients with incidence (1.70%), acute renal failure were 2 patients with incidence (0.85%), eclamptic fits complicate 15 cases with incidence (6.41%) (Table 6).

As regard fetal complications deliveries of preterm babies were 51 (24.35%), IUFD (intrauterine fetal death) were 13 patients (5.55%) (Table 5).

There was seasonal variation the largest numbers of patients with preeclampsia were in August 32 patients with incidence (13.67%), the least were January with 11 patients (4.70%) (Table 4).

<table>
<thead>
<tr>
<th>Variables</th>
<th>Range</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patients age</td>
<td>18-47</td>
<td>32.5</td>
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</table>

<table>
<thead>
<tr>
<th>Parity</th>
<th>Number</th>
<th>Incidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primigravida*</td>
<td>72</td>
<td>31.16%</td>
</tr>
<tr>
<td>Multipara**</td>
<td>125</td>
<td>53.41%</td>
</tr>
<tr>
<td>Grand multipara***</td>
<td>37</td>
<td>15.81%</td>
</tr>
<tr>
<td>**</td>
<td>**</td>
<td>**</td>
</tr>
<tr>
<td>Total</td>
<td>234</td>
<td>100%</td>
</tr>
</tbody>
</table>

* : First pregnancy.
** : Delivered 2 to 4 times.
*** : Delivered 5 times or more.
Table (6): Fetal complications.

<table>
<thead>
<tr>
<th>Complication</th>
<th>Number</th>
<th>Incidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prematurity</td>
<td>51</td>
<td>24.35%</td>
</tr>
<tr>
<td>IUFD</td>
<td>13</td>
<td>5.55%</td>
</tr>
</tbody>
</table>

Table (7): Maternal complications.

<table>
<thead>
<tr>
<th>Complication</th>
<th>Number</th>
<th>Incidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accidental hemorrhage</td>
<td>4</td>
<td>1.70%</td>
</tr>
<tr>
<td>Acute renal failure</td>
<td>2</td>
<td>0.85%</td>
</tr>
<tr>
<td>Eclamptic fits</td>
<td>15</td>
<td>6.41%</td>
</tr>
<tr>
<td>HELLP $</td>
<td>1</td>
<td>0.42%</td>
</tr>
</tbody>
</table>

Discussion

In our study, the incidence of preeclampsia was 5.46% (234/4289) of all deliveries. This incidence is low in relation to other countries as South Africa where the incidence of preeclampsia 11.5% of all deliveries (1.329/11.585) [7].

Also it is high incidence in comparison to Iran where were 262 pregnant women with preeclampsia out of 20520 deliveries which represent 1.27% [8].

This variation in the incidence of preeclampsia may be due to its geographical distribution and may be it has increase incidence in black race as South Africa.

In our study there is seasonal variation in the incidence of preeclampsia the incidence increase in summer the highest incidence in August and the lowest incidence in January (winter), incidence in August were 13.67% (32 patients) and incidence in January were 11 patients (4.70%).

This results agree with other studies which represents highest prevalence were detected in summer especially in September (10.6875%) and August (10.3053%) and lower prevalence were found in winter and early spring especially in January (5.7552%) and April (5.7252%) [8].

And disagree with other studies which revealed that there is a seasonal variation in the prevalence of preeclampsia and the highest in winter (13.6%) patients with preeclampsia from all admissions compared to those admitted in summer at Tygerberg Hospital, South Africa [7].

In our study 152 patients terminated by C.S (64.95%) out of 234 patients so the preeclampsia increase the incidence of CS rate; this study is lower than the results in other studies that revealed that the incidence of CS was 85.9%.

Conclusion:

There is a high incidence of preeclampsia at Aswan University Hospital and there is seasonal variation more in summer than winter.

Preeclampsia increases the incidence of CS rate to prevent maternal complications of preeclampsia.

Recommendation:

Uterine artery Doppler at 18 weeks gestation for all patients booking for antenatal care to predict preeclampsia to prevent its sever complications by follow-up of blood pressure regularly.

References


8- ROYAN NASIRI, AKRAM AHMADI SHADMEHRI, PEYMAN KHAJEH GBIASSI, MOHAMAD SAHAFRAT YAZDI and MORTEZA MAZLOUM FARSI BAFI: Association of meteorological factors and seasonality with preeclampsia a 5 year study in north east of Iran informa health care posted on line on March 28, 2014.
الملخص العربي

الملخص: يعتبر ارتفاع ضغط الدم الناجم عن الحمل سبباً رئيسيًا لوفيات السيدات الناتجة عن الحمل ويُعتبر تسمم الحمل (ما قبل الارتعاج) من ثاني أهم الأسباب لوفاة الأمهات بعد التزيف وكذلك هو سبب لوفيات ماحول الولادة بشكل كبير. ويُشكل نسبة حدوث ارتفاع ضغط الدم مع الحمل 6-8%. ويُلاحظ ارتفاع ضغط الدم اثناء الحمل عدة اشكال.

الأدوات والطريقة: قائمة المرضى الذين يعانون من تسمم الحمل (ما قبل الارتعاج) والمقبلين على مستشفى اسوان الجامعي خلال الفترة من يناير/يناير 2012 إلى ديسمبر/كانون الثاني 2013.

النتائج: كان هناك 428 حالة في الولايات خلال هذه الفترة، بينهم 346 مريضة الذين يعانون من تسمم الحمل (ما قبل الارتعاج) بنسبة حدوث 80.7%. وكان هناك تباين موسمي في نسبة حدوث تسمم الحمل (ما قبل الارتعاج). كان أكبر عدد من المرضى الذين يعانون من تسمم الحمل (ما قبل الارتعاج) في أغسطس/آب بنسبة حدوث 7.16%، والفئات كانا في يناير/كانو برَدَد 11 مريضا بنسبة حدوث 4.7%.

الاستنتاجات: هناك نسبة عالية من حالات تسمم الحمل (ما قبل الارتعاج) في مستشفى اسوان الجامعي مقترنة بعدد حالات المرضيةعلى المستشفى، كذلك هناك تفاوت موسمي في معدل حدوث تسمم الحمل (ما قبل الارتعاج) يكثر في فصل الصيف عناه في الشتاء.