Drug utilization patterns during antenatal period

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Introduction: The rationale for use of drugs during pregnancy requires a careful assessment as in addition to the mother, the health and life of her unborn child is also at stake. Careful consideration of the benefit to the mother and the risk to the fetus is required when prescribing drugs during pregnancy. Recommendation to avoid all drugs during pregnancy is unrealistic and may be dangerous. Evidence available shows that physicians prescribe surprisingly large number of drugs. Objective: To evaluate the patterns of drug prescriptions to pregnant women in tertiary care hospital in Mangalore. Methods: All pregnant women [509] attending antenatal clinic for consecutive two months in a government hospital were included in the study, after taking individual written informed consent. Each patient after the antenatal check up was interviewed and information documented in a specific data collection format designed for the study. Results and discussion: Majority of the respondents [74.5%] were illiterate. But in spite of illiteracy the women were fairly well informed about some of the crucial issues in pregnancy like periodicity of antenatal check up, need to take some drug supplements during pregnancy and to avoid certain drugs. Majority of the respondents [57.2%] said that they do not indulge in self medication. All essential supplements were supplied free of cost by the state and all patients were prescribed the required medication. Drugs like Albendazole and ciprofloxacin which are not considered very safe in pregnancy were used 24 and three patients respectively.

Key words: drug utilization, pregnancy, polypharmacy

INTRODUCTION

Altered physiology during pregnancy demands special care in the use of drugs. [1] Immense precautions need to be taken for the use of drugs during pregnancy, as in addition to health of the mother health of the fetus too may be affected. [2] No doubt drug treatment may be beneficial to the mother in some circumstances but the same agents may be hazardous to the unborn. Selection of drugs best suited to be administered to a pregnant woman is a challenging task to the doctors in view of the unique physiological changes. [3] Though teratogenic risk is a biggest risk in the use of many drugs, it is unrealistic to recommend, not to use any drugs at all during pregnancy. This decision may even prove dangerous for the health of the mother. [4] Risk benefit situation need to be carefully analyzed by the physicians in managing medical conditions in a pregnant woman. [5][6] Despite the absence of adequate studies on the safety and effectiveness of prescription drugs for pregnant women, evidence available shows that physicians prescribe, and pregnant women take a surprisingly large number of drugs. An international investigation sponsored by WHO showed that pregnant women ingest an average of three prescription medications during pregnancy. Same study showed that more than 80% of the women had taken at least one prescription medication during their pregnancies [7].

Malnutrition, unregulated fertility and infections are the most important health problems among pregnant women in India. Every pregnant woman need to be aware of the supplementation with iron and folic acid during pregnancy. Antenatal visits are very important in preventing perinatal complications. Among lower socioeconomic group at least three antenatal visits are mandatory, as against the 13 visits ideally recommended. [8] Self-medication and treatment by practitioners of alternative medicine is not uncommon during pregnancy, particularly plant medications, under the impression that plants are safe to be used. Several studies of medicinal plants showed abortive, teratogenic potential and cytotoxic properties. It is necessary to educate pregnant women to avoid self-medication with medicinal plants. [9][10]

Aim:

To evaluate the patterns of drug prescriptions to pregnant women in tertiary care hospital in Mangalore.

Objectives:

To find out the awareness of importance of iron, folic acid among pregnant women, to find out the extent of self medication among pregnant women and to assess the average cost of prescription.

Subjects and methods:

All pregnant women [509] attending antenatal clinic for consecutive two months in a government hospital were included in the study, after taking individual written informed consent. The study was approved by the institutional ethics committee. Each patient after the antenatal check up was interviewed and information documented in a specific data collection format designed for the study. The average number of medicines per encounter was calculated by dividing the total number of drugs by the number of encounters.

RESULTS

Demographic profile: Among 509 patients interviewed majority 239[47%] were in the age group of 22-25 years. Nine [1.8%] were aged more than 30 years. Majority of the respondents 379[74.5%] were illiterate. There were 218[42.8%] primigravida and the rest were in third or fourth pregnancies. Patients were almost equally distributed in II [47.5%] and III [52.5%] trimesters. Only 29 [5.69%] women were not aware of the need for frequent antenatal examination nor the place where it can be carried out. [Table 1]. However exact frequency of examination was not known to majority of the pregnant women.

Table 1: Education status and awareness of frequency of antenatal examination

<table>
<thead>
<tr>
<th>Education status</th>
<th>Frequency of antenatal examination</th>
<th>Don’t know</th>
<th>Less than 3 times during pregnancy</th>
<th>4-10 times</th>
<th>Every month</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Literate</td>
<td>20</td>
<td>12</td>
<td>20</td>
<td>327</td>
<td>379</td>
<td>509</td>
</tr>
<tr>
<td>Primary/Secondary</td>
<td>5</td>
<td>7</td>
<td>81</td>
<td>97</td>
<td>107</td>
<td>164</td>
</tr>
<tr>
<td>High school</td>
<td>9</td>
<td>5</td>
<td>28</td>
<td>33</td>
<td>51</td>
<td>64</td>
</tr>
</tbody>
</table>

Self medication: Majority of the respondents 291[57.2%] said that they do not indulge in self medication. Among those who take self-medication 132[25.9%] were taking ayurvedic medicines. Nausea was the chief complaint for which pregnant women were taking self-medication [26%] followed by pain abdomen and fever [7%]. Among illiterate women 41.7% admitted to using self medication whereas only 24.2% of the women with high school education took self medication. This difference was found statistically significant [p=0.001] [Table 2].

Table 2: Education status and Practice of self medication

<table>
<thead>
<tr>
<th>Education status</th>
<th>Practice of self medication</th>
<th>No self medication</th>
<th>Ayurvedic</th>
<th>OTC</th>
<th>Home remedies</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Literate</td>
<td>221[58.3]</td>
<td>103</td>
<td>17</td>
<td>38</td>
<td>379[100]</td>
<td></td>
</tr>
<tr>
<td>Primary/Secondary</td>
<td>45[8.4]</td>
<td>27</td>
<td>15</td>
<td>0</td>
<td>50[100]</td>
<td></td>
</tr>
<tr>
<td>High school</td>
<td>25[5.8]</td>
<td>2</td>
<td>5</td>
<td>1</td>
<td>33[100]</td>
<td></td>
</tr>
</tbody>
</table>

*p=0.001; OTC= Over the counter drugs

Awareness about drug supplementation and toxicity: More than 90% of the patients were aware of the fact that it is essential to take some medicines
during pregnancy. Among 509 patients studied, 96.5% were aware that during pregnancy some drugs should not be taken. However none could name any drug.

Prescription analysis: Polypharmacy of four or more drugs in a prescription were found in 98.8% of prescriptions. [Figure 1] Iron, folic acid and calcium were prescribed to all the study subjects. All drugs were advised to be taken once a day except iron which in 24 patients of anemia was advised to be taken twice a day. All the patients in second trimester were advised TT [Tetanus toxoid] whereas 77 patients in third trimester were not advised TT during the current visit. There were 64 co-morbid conditions seen among the study population. There was one patient with epilepsy and one with depression for whom lamotrigine and paroxetine were prescribed.

Table 3: Co-morbid conditions and prescription of specific drugs

<table>
<thead>
<tr>
<th>Co-morbid conditions</th>
<th>Drugs</th>
<th>Insulin</th>
<th>MgSO4</th>
<th>Methyldopa</th>
<th>Quinine</th>
<th>Ciprofloxacin</th>
<th>Paracetamol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gestational DM[17]</td>
<td></td>
<td>17</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>PIH[11]</td>
<td></td>
<td></td>
<td>10</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Anemia[24]</td>
<td>24</td>
<td></td>
<td></td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Malaria[4]</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VT[3]</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Epilepsy[1]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PUG[1]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Among these 509 women, 239 [47%] were in the age group of 22-25 years. Only 9 [1.8%] patients were aged more than 30 years. There were no patients aged less than 18 years. Most of the patients were illiterate 379 [74.5%].

Patients were almost equally distributed between second 242[47.5%] and third trimesters 267[52.5%]. There were no women at all who were in first trimester. Probably women are not aware of the importance of antenatal check up early in the pregnancy during first trimester or it may be possible that they become aware of the pregnancy itself quite late. Primigravida constituted 42.8% [218] of all the patients. There were 298 [57.25%] women who did not have any information about the ideal frequency of antenatal checkup. In this group 20 patients were illiterate. Rest of the patients gave various responses for the frequency of antenatal check up varying between every month to less than three times during pregnancy. This probably suggests that health education has to be improved at primary care level for pregnant women.

Most of the respondents 465[91.4%] were aware that drug supplementation is essential during pregnancy. Pregnant women were also well aware of the fact that there are some drugs which should not be taken during pregnancy. None of the respondents could name any such drugs. None of these observations were related to educational status as even illiterates were fairly well informed about this fact.

Most [57.25%] of the patients did not resort to self medication. Among those who used self-medication, 132[25.9%] women were using ayurvedic drugs. Most of these patients used self medication for nausea. The higher prevalence of practice of self medication among illiterate women as compared to those with high school education was found statistically significant [p<0.001]. Polypharmacy of four or more drugs was seen in 503[98.4%] of the prescriptions. According to a study done by Splinter M et al. the mean number of medications consumed during second and third trimesters is 3.3 and 4.1, [11] iron, folic acid and calcium tablets were prescribed for all the pregnant women encountered. All these medications were advised to be taken once a day. However in 24 patients iron tablets were administered twice a day. It was found that these 24 patients had iron deficiency anemia. Tetanus toxoid was administered to all the patients in second trimester. Among patients in the third trimester, 77 patients were not advised tetanus toxoid. Probably these women had completed the required tetanus toxoid injections prior to the present encounter or waiting for the second dose as they could have been in early stages of third trimester.

There were 64 encounters of co morbid conditions among 64 pregnant women. Anemia was the most common [57.25%]. Six-forty-five patients were followed by other drugs for co morbid conditions like diabetes mellitus, hypertension, plasma [44] and other diseases. Methyldopa was also used for hypertension, which is considered a safe drug.

Lamotrigine was the drug used in cases of epilepsy for the patients in the present study. Lamotrigine monotherapy in pregnancy is safer than valproate monotherapy from the point of view of fetal malformations, and no more hazardous in this regard than therapy with other commonly used antiepileptic drugs. It is reported that seizure control in pregnancy tended to be not as good in the women taking lamotrigine compared with those taking valproic acid. [10] Lamotrigine was used in a case of depression. Though there is controversy regarding the safety of paroxetine, there is not enough evidence to suggest that paroxetine increases the risk of cardiac malformations above the population baseline risk. [11]

All the drugs needed to be supplemented during pregnancy like iron tablets, folic acid and calcium were provided free by the hospital. Mean cost of these drugs was less than one rupee per day. Sixty-four patients were prescribed other drugs for co morbid conditions like diabetes mellitus, hypertension, plasma etc. The cost of such drugs per day ranged from rupees 3.50 to rupees 26.0, mean cost being rupees 6.70.

CONCLUSION

There were 509 pregnant women included in the study at the end of study period. Most of them were in mid twenties. There were no under aged subjects. Illiteracy was very high. In spite illiteracy the women were fairly well informed about various aspects of self care during pregnancy. There was total absence of pregnant women in their first trimester attending antenatal clinics. All essential drugs and vitamin and mineral supplements were prescribed adequately. Co-morbid conditions were properly attended to. Self medication is prevalent among large number of patients particularly for symptoms of first trimester like nausea and pain abdomen. A few drugs having teratogenic potential have been found to be prescribed, during second and third trimesters.

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REFERENCES


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