Anemia among the primigravid women in Asir Region, Saudi Arabia: an epidemiological study

Wole Al-Akija, MA MD, DTCH, M. CommH, FMCPH

Abstract Objective: The objective of the study is to find out the prevalence of anemia among primigravid women living in the Asir Region of Saudi Arabia.

Methods: A cross sectional study was conducted in August 1992, on a representative sample of 1033 primigravid women attending 69 primary health care centers in the region by random sampling techniques using proportional allocation, multistage method.

Results: Anemia of pregnancy in primigravid women was found at a non-significant rate (20.1%) when compared with multigravid (parity up to 5) women (20.8%). The prevalence was found to be affected by age, gestational age, education, body mass and topography of the Asir Region.

Conclusion and recommendation: Because the primigravida are more likely to be ignorant about health maintenance during pregnancy and because of their inexperience, it is advocated that special attention should be paid to them during health education sessions at the primary health care centers.

Keywords: Anemia, primigravid women, in Asir Region

Anemia has been recognized as the most common nutritional problem among pregnant or lactating women and it is estimated that over half of all women in developing countries develop anemia during the course of their pregnancy. Many authors in Arab countries have concentrated on the prevalence of anemia among pregnant women in general and no specific epidemiological study has been focused on primigravid women. The effect of multiparity on the development of anemia is well-known as well as other factors like illiteracy, high altitude, short interpregnancy spacing and those becoming pregnant below the age of 20 years. However, removing the effect of multiparity and interpregnancy spacing and considering other factors, it is of interest to find out the prevalence of anemia among the primigravida. Full literature on this subject in Arabic countries is scarce. The objective of the present study is to see the effect of some sociodemographic factors on anemia of pregnancy among primigravid women in the Asir Region of Saudi Arabia.

Materials and methods The study took place at 69 primary health care centers (PHCCs) in the Asir Region of Saudi Arabia. This region has a population of 1,200,000 and is located in the southwest of Saudi Arabia, covering an area of more than 80,000 km² of high altitude and sea level areas.

The region is divided into 15 health sectors through which PHCCs are distributed. By random sampling techniques using proportional allocation multi-stage method, 29% of the PHCCs (69) were selected, taking into consideration rural, urban and topographic distributions of the health centers. Blood samples were taken and hemoglobin was estimated spectrophotometrically. To avoid inter-observer variation, hemoglobin analysis was carried out by one person only.

A primigravida is considered anemic if the hemoglobin level falls below 11g/dl. The body mass index was calculated by measuring the patient’s height (to the nearest 0.5 centimeter) using calibrated weight stands and weight (to the nearest 0.5 kg) using calibrated weighing scales. The height stands and weighing scales used in all the 69

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PHCCs were standardized. The women were weighed wearing light clothing and without shoes. The data was analyzed using SPSS/PC+ software package. Chi-square test was used to test for significance at 5% level. Person’s correlation co-efficient (r) was used to find the relationship between the prevalence of anemia and gestational age.

**Results** Although a total of 1065 primigravid women were detected during the survey, however, only 1033 provided blood samples. Their hemoglobin results showed that 208 (20.1%) were anemic. Table 1 shows that anemia is more common among primigravid women who are less than 21 years of age (24%).

<table>
<thead>
<tr>
<th>Age groups in years</th>
<th>Anemic No.</th>
<th>%</th>
<th>Non-Anemic No.</th>
<th>%</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>13-20</td>
<td>149</td>
<td>24</td>
<td>471</td>
<td>76</td>
<td>620</td>
</tr>
<tr>
<td>21-30</td>
<td>55</td>
<td>14.1</td>
<td>336</td>
<td>85.1</td>
<td>391</td>
</tr>
<tr>
<td>31+</td>
<td>4</td>
<td>18.2</td>
<td>18</td>
<td>81.8</td>
<td>22</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>208</strong></td>
<td><strong>20.1</strong></td>
<td><strong>825</strong></td>
<td><strong>79.9</strong></td>
<td><strong>1033</strong></td>
</tr>
</tbody>
</table>

$X^2=14.86, P<0.05$

In Table 2, attempts were made to see if obesity was associated with anemia of primigravid women. It is found that the non-obese are more likely to develop anemia.

<table>
<thead>
<tr>
<th>Body Mass Index</th>
<th>Anemic No.</th>
<th>%</th>
<th>Non-Anemic No.</th>
<th>%</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obese (BMI &gt;27)</td>
<td>51</td>
<td>15.8</td>
<td>271</td>
<td>84.2</td>
<td>322</td>
</tr>
<tr>
<td>Non-Obese (BMI &lt;27)</td>
<td>157</td>
<td>22.3</td>
<td>548</td>
<td>77.7</td>
<td>705</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>208</strong></td>
<td><strong>20.3</strong></td>
<td><strong>819</strong></td>
<td><strong>79.9</strong></td>
<td><strong>1027</strong></td>
</tr>
</tbody>
</table>

$X^2=5.66, P<0.05$

Anemia was more common among primigravid women who were illiterate than among those who were educated (Table 3).

<table>
<thead>
<tr>
<th>Body Mass Index</th>
<th>Anemic No.</th>
<th>%</th>
<th>Non-Anemic No.</th>
<th>%</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Illiterate</td>
<td>111</td>
<td>24.3</td>
<td>346</td>
<td>75.7</td>
<td>457</td>
</tr>
<tr>
<td>Educated (at least primary)</td>
<td>97</td>
<td>16.8</td>
<td>479</td>
<td>83.2</td>
<td>576</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>208</strong></td>
<td><strong>20.3</strong></td>
<td><strong>825</strong></td>
<td><strong>79.7</strong></td>
<td><strong>1033</strong></td>
</tr>
</tbody>
</table>

$X^2=8.792, P<0.05$

Table 3 - Anemia and level of education among primigravid women

<table>
<thead>
<tr>
<th>Altitude</th>
<th>Anemic No.</th>
<th>%</th>
<th>Non-Anemic No.</th>
<th>%</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sea Level</td>
<td>14</td>
<td>32.7</td>
<td>290</td>
<td>67.3</td>
<td>431</td>
</tr>
<tr>
<td>High Altitude</td>
<td>67</td>
<td>11.1</td>
<td>535</td>
<td>88.9</td>
<td>602</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>208</strong></td>
<td><strong>20.1</strong></td>
<td><strong>825</strong></td>
<td><strong>79.9</strong></td>
<td><strong>1033</strong></td>
</tr>
</tbody>
</table>

$X^2=72.1, P<0.05$

Table 4 - Effect of altitude on anemia among primigravid women

level were more anemic compared to those who lived at high altitude.

**Discussion** Repeated pregnancies have been associated with medical complications including iron deficiency anemia but it is often overlooked that with the first pregnancy a woman may be naive about health maintenance and even though her iron stores are normal at the beginning, her diet may be imperfect and she may eventually develop nutritional anemia which is the commonest form of anemia encountered in pregnancy. She may even be anemic before the start of the pregnancy.

To most couples, the first pregnancy carries an emotional satisfaction that the wife has fulfilled the role of a mother and that a healthy child is the right of every mother.

Compared with a previous study in the Asir Region primigravid women of this region suffer from anemia at a non-significant ($X^2 = 0.173, P > 0.05$) level than their multigravid (those who have had up to 5 children) counterpart.

This study has highlighted factors which could affect hemoglobin levels in primigravid women. These factors are almost identical with those affecting the multigravida in the Asir Region. One result for which the author has no explanation is the anemia which was found more common among non-obese primigravid women. Unfortunately, the study did not look for clinical evidence of malnutrition among them.
It has been suggested that the type of anemia seen in the Asir Region of Saudi Arabia, a place enjoying affluence from the oil boom, is not due to food shortage but food beliefs and behaviors. A primigravida is more likely to have wrong ideas on nutrition in pregnancy than a multigravida and that is why the author will advocate intensive health education directed towards those becoming pregnant for the first time and more especially those who are illiterate. Such education should place more emphasis on the importance of balanced diet and what is to be gained by fully complying with iron supplementation.

In all the PHCCs studied, hemoglobin estimation and iron supplementation is a routine procedure. No effort should therefore be spared to encourage compliance with iron medication. The burden of health education should not be left to the nurses alone; the primary health care doctors also have a role to play.

Acknowledgment The author recognizes the academic input of the following:

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2. Dr. RAG Al-Erian
3. Dr. Muhammad Abdul-Moneim

I would also like to thank the PHC Technical Orientation Supervisors in the chosen sectors for technical assistance.

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References


ملخص:

الهدف: تهدف هذه الدراسة إلى التعرف على مدى انتشار فقر الدم بين السيدات الحوامل لأول مرة في منطقة عسير بالملكية العربية السعودية. وسائل البحث: تم إجراء دراسة مقطوعية في أغسطس 1992 م على عينة من 101 سيدة حامل للمرة الأولى حيث تمثل هذه العينة السيدات الحوامل للمرة الأولى في المنطقة. والأولى يتم متابعة حملهن في 19 مركز رعاية صحية أولي بالمنطقة. وقد تم اختيار العينات عشوائياً بأسلوب العينة متعددة المرات. النتائج: لم تظهر الدراسة فرقًا ذات دلالة إحصائية بين معدل انتشار فقر الدم بين الحوامل لأول مرة (1.5٪) وبين الحوامل لأكثر من مرة (حتى 5 مرات) (8.8٪). وقد أوضحت الدراسة تأثير مرضي فقر الدم بالساليس لفترة الحمل والتعليم وكتلة الجسم والجهاز العصبي وكتلة الجسم الحيضي. الخلاصة والنتيجة: يوصي بتوسيع خاص للحوامل للمرة الأولى نظرًا لاحتمال عدم خبرة وعدم دراية هؤلاء الحوامل بأسباب وأسباب متابعة الحمل. ويمكن أن يتم ذلك خلال جلسات التنظيف الصحي التي تقددة في المركز الصحي الأولية. مفتاح الكلمات: فقر الدم، الحمل الأولي، منطقة عسير في المملكة العربية السعودية.