A CROSS SECTION STUDY ON IRON DEFICIENCY ANEMIA IN ADOLESCENT GIRLS

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Conflicts of Interest: Nil

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Abstract:
Background: Iron deficiency is the most common cause of anemia and is one of the leading risk factors for disability and death worldwide, affecting an estimated 2 billion people.¹

Methods: This was cross-section study. All the adolescent girls studying in standards 9th - 12th class who were given consent to hemoglobin estimation were included in the study.

Results: The prevalence of anemia among adolescent girls was found as 73.00%. Out of 73 anemic girls, 52 girls were suffering from mild degree of anemia and 19 girls were having moderate degree of anemia. Only two girl was found severely anemic.

Conclusion: The prevalence of anemia among adolescent girls is alarmingly high in India.

Keywords: Prevalence, Anemia, Adolescent.

Introduction
Iron deficiency is the most common cause of anemia and is one of the leading risk factors for disability and death worldwide, affecting an estimated 2 billion people¹. It is a state in which the content of iron in body is decreased, which manifests as decreased serum iron, decreased transferrin saturation, low hemoglobin and low hematocrit. It occurs in varying degrees of severity, which merge imperceptibly into one another²,³.

Iron deficiency impairs work performance both during intense short-lived exercise and longer intervals. The decrease in work capacity is proportional to blood hemoglobin concentration. Low hemoglobin concentration in blood results in decreased oxygen capacity of hemoglobin with the parallel effect on blood carbon dioxide transport⁴. Iron deficiency also results in decreased iron containing enzymes of mitochondrial respiratory chain in skeletal muscles with a concomitant decline in muscle respiratory capacity to utilize oxygen. This reduction in aerobic metabolism is associated with an increased susceptibility to fatigue⁵.

WHO has classified anemia into three categories: mild (11.0 - 11.9 g/dl), moderate (8.0 - 10.9 g/dl) and severe (< 8 g/dl) anemia ⁶. UNICEF classified anemia to be mild in children, adolescent girls and pregnant women if the Hb level in blood is between 8.0 and 10.99 g/dl among children, 10.0 to 11.99 g/dl among adolescent girls and 8.0 - 10.99 g/dl Hb level among pregnant women. For severely anemic the Hb level should be below 5.0 g/dl among children, 8.0 g/dl among adolescent girls and 5.0 g/dl among pregnant women. Accordingly moderate anemia is denoted when the Hb level is between mild and severe anemia⁷.
Materials and Method
This was cross-sectional study. All the adolescent girls who were given consent to hemoglobin estimation were included in the study.
The girls ≥20 years, and those suffering from any chronic disease were exclude from the study.

A total of 100 girls were interviewed and were investigated for their Hemoglobin concentration. A predesigned and pretested schedule was used to collect the information about the participants.

Results

Table 1: Prevalence of anemia among adolescent girls ( N = 100)

<table>
<thead>
<tr>
<th>Hb level (g/dl)</th>
<th>No. of girls</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;11</td>
<td>26</td>
<td>26.00</td>
</tr>
<tr>
<td>10.0-11.9</td>
<td>53</td>
<td>53.00</td>
</tr>
<tr>
<td>7.0-9.9</td>
<td>19</td>
<td>19.00</td>
</tr>
<tr>
<td>&lt;7.0</td>
<td>2</td>
<td>2.00</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100.00</td>
</tr>
</tbody>
</table>

The prevalence of anemia among adolescent girls was found as 74.00%. Out of 74 anemic girls, 53 girls were suffering from mild degree of anemia and 19 girls were having moderate degree of anemia. Only two girl was found severely anemic.

Table 2: Distribution of adolescent girls according to general appearance

<table>
<thead>
<tr>
<th>General appearance</th>
<th>No. of girls</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Well nourished</td>
<td>66</td>
<td>66.00</td>
</tr>
<tr>
<td>Moderately nourished</td>
<td>24</td>
<td>25.00</td>
</tr>
<tr>
<td>Mal nutrition</td>
<td>10</td>
<td>10.00</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100.00</td>
</tr>
</tbody>
</table>

The above table reveals that out of 100 of the adolescents girls 66(66.00%) adolescents girls were well nourished, 24(24.00%) were moderately nourished and remaining 10(10.0%) were malnourished.

Discussion:
Anemia during adolescence influence women’s entire life cycle. It also has negative consequences for survival, growth, development of their children later in life. The Government of India has made the adolescent health as a part of RCH package since 1997.

Later to combat the problem, Government of India started Adolescent Girls anemia Control Program with technical support from UNICEF. The main interventions of this program were later continued under the heads of SABLA and WIFS scheme under Rashtriya Kishor Swasthya Katyakram (RKSK). In the base line survey for the program by UNICEF, 65-99% of adolescent girls were found anemic, at various states of country.8

In this study the prevalence of anemia among adolescent girls was observed as 74.00%, which is very close to the observations taken by Rati et al9 and Patnaik et al10, who found the prevalence as 80% and 78.8% in their studies in rural areas of Karnataka and Odisha respectively. Though Kaur et al 11 observed anemia prevalencerate as 59.8% in rural Wardha (Maharashtra). Whereas a very high prevalence of anemia (90.1%) was noted by Kulkarni et al12 in adolescent girls of a urban slum in Nagpur.

Conclusion:
The prevalence of under nutrition and anemia among adolescent girls is alarmingly high in India.

References: