

## Need of Treatment beyond Medicines and Thinking beyond horizons - Anaemia in Adolescents.

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**A**naemia is a major public health problem in developing countries. It is one of the most prevalent micronutrient deficiencies globally and in India. The long list of the consequences of anaemia include impaired cognitive performance, decreased physical work capacity, increased morbidity from infectious diseases, and greater risk of death during the perinatal period along with poor pregnancy outcomes.

Children are particularly vulnerable, due to their specific nutritional needs for growth and development. Approximately 50% of all child mortality has been attributed to malnutrition, including deficiencies of iron, vitamin A and zinc. Adolescent girls constitute an important physiological group, and their nutritional requirements demand special attention as they are future mothers. Keeping in mind the low age of marriage in India, pregnancy with anaemia is destined to face complications in majority of the cases.

The National Family Health Survey (NFHS)-3, 2005–06 estimated that 56% of women and 30% of men in India in the age group of 15–19 years were anaemic. The low iron content of a typical Indian diet along with the high prevalence of worm infestation is the most common cause responsible for high prevalence of anaemia in India.

In the last decade, many efforts have been made to address the problem of anaemia. The various strategies for the control of iron deficiency anaemia include iron supplementation, food-based approaches, including fortification and dietary diversification, and general public health measures. Ministry of Health and Family Welfare, Government of India launched the National Iron Plus Initiative (NIPI) as a comprehensive strategy to combat the public health challenge of iron deficiency anaemia that include age specific interventions with IFA supplementation and deworming.

The Ministry of Health and Family Welfare, Government of India also launched a nationwide weekly IFA supplementation (WIFS) programme in July 2013. The WIFS programme focused on adolescents attending government schools and out-of-school adolescents 11–19 years of age. The out-of-school adolescents were reached through the *Anganwadi* centres under the Integrated Child Development Services (ICDS) scheme.

Despite all these measures, the state wise results depicted in the most recent NFHS-4 survey (2015-16) are in fact shocking, it reveals the increased prevalence of anaemia. For instance, Prevalence of Non-pregnant women age 15-49 years who are anaemic (<12.0 g/dl) (%) as per NFHS-4 is 63.1%, whereas it was 55.2% as per NFHS-3. Similarly, prevalence of anaemia in men age 15-49 (<13.0 g/dl) (%) has also increased from 19.2% to 20.9% as per NFHS-4. These results are disheartening keeping in mind obstacles the iron supplementation programmes has faced in past years.

Treatment of anaemia is long and requires high level of motivation for both patients and health providers. The side-effects of IFA tablets are a major barrier to the successful implementation of the programme. Hence, we should target the same. It is also important to provide a proper referral system with adequate sensitization of all the stakeholders to manage the side-effects as and when needed. Setting up emergency response system

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to handle the adverse effects of WIFS was a motivating step by Delhi Govt that help in decreasing the anxiety about the treatment amongst the parents.

Iron syrup and tablets supplied has poor acceptability among the beneficiaries due to its presentation, colour and taste. Most of the users consume it once or twice and gradually leave the treatment incomplete.

Another interesting aspect of this problem was depicted from the cluster randomised trial done by de Gier B et al<sup>1</sup> which suggested that micronutrient deficiencies can increase susceptibility to hookworm infections, and infections can also alter the intestinal mucosa, leading to reduced absorption of nutrients. This phenomenon is being increasingly recognized as environmental enteropathy.<sup>2</sup> On the other hand, micronutrient fortification might even increase infection risk or persistence. This phenomenon has been described for iron supplementation and several pathogens may be contaminating.<sup>3</sup>

Association of anaemia in adolescent girls with personal, cultural, socioeconomic factors such as literacy of mothers, not using slippers, number of siblings, poor hygiene, poor hygiene, was found in a study published in this issue conducted in Chidambaram Tamil Nadu.<sup>5</sup> This highlights the need of hygienic practices along with nutritional program for the prevention of anaemia in girls. To add, we are stressing more on external modifications these days but not changing the kitchen habits and cooking methods. Incorporating iron rich food knowledge, its importance and taking it from real need to felt need is all that is actually required to curb this problem.

Dietary modification is one aspect that should not be ignored and it should be given priority over the pharmacological measures. In practical sense, no health problem can be solved just by medicines, and we should try that nutritious food should actually replace WIFS in schools and anganwadi centres. A child who is too choosy about the food that is cooked by his own mother, how can we expect from him that he is going to be compliant to a treatment that already has a long list of side effects to its name? Food that is locally made, flavoured, palatable and side by side rich in iron salts would be more welcomed by this age group. For example, biscuits have been identified as the appropriate vehicle for fortification due to its convenience with regard to storage, distribution and long shelf life as compared to other school feeding options.<sup>4</sup> But cost of the same needs to be kept in mind. To conclude, the present scenario gives us the food for thought and call for further research that should focus on different aspects of deficiency disorders and their public health management.

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