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Comparative Study of Prevalence of Anemiain School Children during in Karnataka

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Abstract: ***Maternal Anemia has been one of the prime cause for Maternal and Infant mortality. Adverse outcomes in the form of Low birth weight and very low birth weight infants, still birth, pre-term, spina bifida, Intra uterine growth retardation are associated with maternal anemia, which is precipitated by adolescent anemia. This study aims to map the district-wise differences in prevalence of Anemia in public school children obtained by screening and preliminary cutaneous and scleral examination. The study data was obtained from the state school health data base, by obtaining permission from the Programme Officer. Secondary analysis of the routinely compiled screening data of school children from districts for different diseases was carried out.***

Keywords: Anemia, school children, maternal mortality, pregnancy

1. Introduction

Anemia has been classified as a major health problem according to WHO survey report 1997, affecting nearly 2 billion people mainly in developing countries. Iron deficiency Anemia is considered to be an important contributor to the Global disease burden.(WHO,2002).

Iron deficiency Anemia is a serious Public Health problem due to its impact on psychological and physical development, behavior and work performance. It has its impact mainly on the vulnerable groups of children and pregnant women (Alemayehu. G et al, 2003).

Of this the prevalence among young children and pregnant women being 48% and 51% respectively. Anemia prevalence in school-age children is 37%, non-pregnant women 35% and adult males 18%.

In the current study we are trying to compare the prevalence of Anemia among school children during the period from 2008-09 to 2009-10. The examination of the students is usually done during August month(1 to 31st) every year with the intention that their study schedule is not hampered. In Karnataka, August month is chosen for the reason that the minor ailments detected/diagnosed during the routine clinical examination of August month are treated during September. Major illnesses like Congenital Heart Diseases or others which require surgical treatment can be carried out during Sep-Oct months when the children have Mid-term holidays and hence do not have to take leave and miss out their studies. Also the Financial years i.e. 2008-09 & 2009-10 are considered, as the children screened and diagnosed with ailments are treated and operated which in turn has financial implications.

2. Objective

- To compare the percentage of Anemia cases in 08-09 Vs 09-10.
- To study the factors influencing the prevalence of Anemia in the study population

3. Literature Review

Anemia during pregnancy is an important public health problem in many developing countries, including India. According to the report of National family health Survey-4 50.3% of pregnant women were found Anemic[1]. Anemia is an important contributor to adverse pregnancy outcomes such as pre term, Low birth weight(LBW),small for gestational age, c-section[2,3]Iron deficiency Anemia is a serious public health problem due to its impact on psychological and physical development, behavior and work performance. It has its impact mainly on the vulnerable groups of children and pregnant women [4].Iron deficiency Anemia is considered to be an important contributor to the Global disease burden.[5].

4. Materials

Sample size: All students from 1st to 10th standard in Government schools/ aided educational institutions/ Residential Navodaya schools in Karnataka.
Sampling design: Purposive cross sectional Sampling/universal sampling
Sample population: All students studying in schools from 1-10th standard.
(Inclusion criteria: All children studying from 1-10th standard)
Study Area: All schools(Government & selected government aided schools) in the state of Karnataka.
Study period: 2008-09 & 2009-10(cross sectional sampling) from 1st to 31st August.
Study tool: Clinical examination, pallor testing(no laboratory confirmation).

5. Method

All students studying in Government and some private schools, also Navodaya schools were examined by Medical Officers(MO)of PHCs by visiting schools within their limits.

Clinical examination of all students from 1st to 10th standards were examined by observation, palpation and superficial

examinations to detect ailments if any like Anemia, Protein Energy Malnutrition(PEM), Vit A deficiency, Otitis media, TB, Scabies etc

The total children examined in the 1st Sample year(2008-09) were **85,76,253** whereas the number of students examined in the subsequent sample year were **82,44,843**.

6. Result

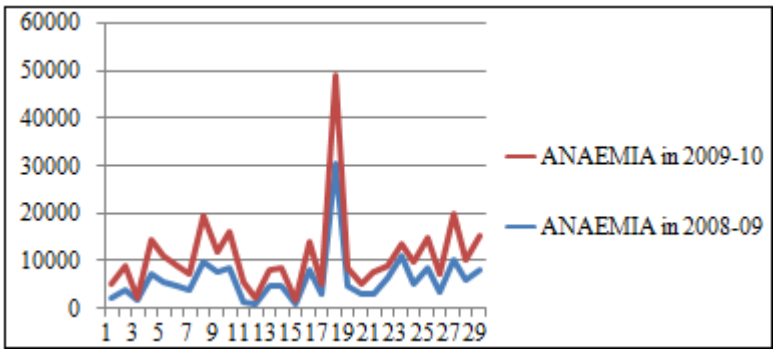
Out of the 85,76,253 students examined about 1,83,787 students were found anemic in the year 2008-09. Whereas nearly 1,40,511 students out of 82,44,843 examined during 2009-10 were found Anemic. This corresponds to about 2 % Anemic children in 2008-09 and about 1.7% in 2009-10. Though we can see an improvement in the overall figures of Anemia detection in children, we also see a district wise difference in detection Anemia cases which may be due to different factors like reporting error (over or under reporting), observer's bias.

The percentage wise decrease in Anemia cases can also be due to IFA tablets supplied as part of the Supplementary Nutrition Programme by the Department of Education, GOK. The department had supplied nearly 563,067,900 tablets to the school children during the year 2008-09 and 543,750,000 tablets during 2009-10. Government of Karnataka, Department of Education provides 108 IFA tablets per year to children and adolescents under this programme. The cost for IFA tablets procured and supplied during the year 2008-09 and 2009-10 is Rs 4,44,82,364.00 and Rs. 4,29,56,250.00 respectively.

Though the percentage of Anemic children in both the study years may seem minimal it is essential to mention some of the setbacks of this study. This study was conducted as a screening examination for various diseases like Vit A deficiency, otitis media, Tuberculosis etc in all the school children of the State, through just clinical examinations not supported by lab investigations. Also there is every possibility of reporting error as the sample size was very large and the study period was only from Aug to Sep months(in some cases Oct also). This can be substantiated from various survey reports which states that the percentage of Anemia in Karnataka is about 80% in children and adolescents girls and more than 45% in expecting mothers.

The main aim of this study is to show district-wise comparison in Anemia cases in the 2 study years. Also it can be seen from the result that all the districts in Karnataka excepting Mysore, Chitradurga and Kolar have shown significant number of Anemia cases which explains the increase in number of Maternal deaths(≈ 216 deaths) in Karnataka.

The figure below pictorially represents the comparison of Anemia cases during 2008-09 and 2009-10.



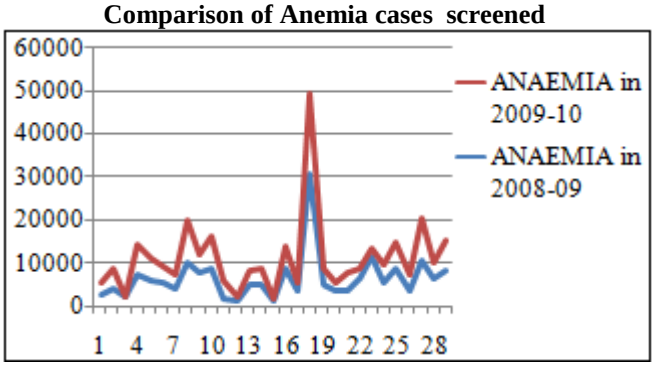
Comparison of Anemia cases screened during 2008-09 & 2009-10

Though there is an overall decrease in the percentage of Anemia cases during 2009-10 this can be attributed to improper reporting system i.e widespread coverage of schools and screening of students for various diseases through physical examination not confirmed by any laboratory investigations. It can also be due to distribution of IFA tablets from Education Department, GOK. The reduction in number of Anemia cases can be due to multiple reasons viz Nutritional support, Supplementation with IFA tablets, delivery of better health care facilities like timely diagnosis and treatments, it can also be due to under reporting of cases, absence of children during examination, observer's error during screening for Anemia by cutaneous examination and so on.

Though the above mentioned factors are a drawback to the study yet the current study provides an understanding as to why and where is the set back and what has to be done to set this right.

7. Recommendations

Comparison of Anemia cases screened



1) Health Information System needs to be strengthened.
2) Proper monitoring and evaluation of the services delivered at all levels of Health care is very essential. This not only provides an idea about the hurdles encountered in proper implementation of Health Programmes but also the place where actually the

setback has occurred. Not only this Evaluation of Health programmes will also provide insight about the good initiatives taken up by the Government and the scope of improvement in the delivery of Health Services.

3) Government should take Public Health initiatives in terms of bringing awareness in Parents/Guardians of children, Teachers, adolescent girls, expecting and lactating mothers regarding the implications of Anemia on students,adolescents especially girls, mothers as well as on the infant.
4) From the above study it is evident that Intersectoral coordination between different departments is very essential in achieving holistic positive Health.
5) Monitoring of these schemes by officials of Health, Education, Food and Public Distribution System, Women and Child development etc should be carried out regularly to address the shortcomings in the successful implementation of this Programme.
6) The curriculum for teaching children should include syllabus on nutritive value of foods which can be used to prevent many of the deficiency related diseases in children.
7) General public should be made aware about misleading food fads and to be scrupulous when planning diet of their families esp; for pregnant women.
8) Parents of children should be educated about the causes of Anemia and its effects on physiological and mental health of children. They should be made aware about inexpensive methods for preventing Anemia.
9) The curriculum for teaching children should include syllabus on nutritive value of foods which can be used to prevent many of the deficiency related diseases in children.
10) The School authorities should encourage back-yard farming and gardening in school premises.
11) Parents should also inculcate healthy habits in children like wearing footwear(to prevent entry of dog tape worms), washing of hands after playing and defecation, eating healthy foods and avoiding junk foods.
12) Mid-day meal Programme started from Education department with the objective to provide nutritious food to school children and to prevent nutrition related diseases in children. This also fosters additional objectives of gender equality, social brotherhood and co-operative team work in villagers as well as children.
13) MDMS and provision of IFA tablets initiated from Education department of the State also have an implication on Health and hence needs to be strengthened.
14) Concept of Health Promoting Schools needs to be materialized. According to WHO " A Health promoting school can be defined as a school constantly strengthening its capacity as a healthy setting for living, learning and working." This concept can be made real only by motivating the teachers to create awareness among parents as well as educate the children to cultivate healthier habits.

8. Conclusion / Summary

Though the percentage of Anemic children in both the study years may seem minimal it is essential to mention some of the setbacks of this study. This study was conducted as a screening examination for various diseases like Vit A deficiency, otitis media, Tuberculosis etc in all the school children of the State, through just clinical examinations not supported by lab investigations. Also there is every possibility of reporting error as the sample size was very large and the study period was only from Aug to Sep months(in some cases Oct also). This can be substantiated from various survey reports which states that the percentage of Anemia in Karnataka is about 80% in children and adolescents girls and more than 45% in expecting mothers

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