

Investigation to Study the Efficacy of Ferrum Phos 3x Alone and Along with Homeopathic Constitutional Medicines on Hemoglobin Level in Adolescence Girls

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ABSTRACT

Background: Anemia is widely distributed among adolescent girls. This turned into multiple programmes to fight under nutrition anemia. A detailed times past followed by constitutional treatment by a fine and skilled homeopathic understanding is necessary to treat the complaints that come into sight during adolescence especially in anemia. The present investigation was carried to see the efficacy of Ferrum Phos 3X alone and along with homeopathic constitutional medicines on hemoglobin level in adolescent girls. **Materials and Methods:** This interventional randomized open labeled parallel group study was conducted at Bharati Vidyapeeth Kanya Prashala, in Pune city. Adolescent age groups (10-18 years) with hemoglobin levels less than 12 g % were included in this study. The data of 'hemoglobin percentage' was analyzed using students "t" test; paired "t" test was applied for post hoc analysis. **Results:** The significant difference ($p < 0.05$) was found in the hemoglobin percentage of the study subjects before treatment of the Ferrum Phos 3X and constitutional medicine as compared to the study subjects in the control group. **Conclusion:** Phosphorus was found to be one of the frequently administered constitutional remedy depicting a possible genus for anemic woe.

Key words: Anemia, ferrum phos, hemoglobin, homeopathic medicine

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INTRODUCTION

In developing countries anemia is widely distributed among adolescents, pregnant women, nursing mothers and children (Waldvogel *et al.*, 2012). Reduction in amount of hemoglobin below acceptable limits along with decrease in red cell population is termed as anemia (Galan *et al.*, 1998). Red blood cells are required to carry oxygen in order to execute the optimal cellular functions. Anemia doesn't develop at once instead it is an adverse outcome of many complex biochemical processes as well as nutritional deficiencies (Cable *et al.*, 2011).

Anemia is associated with diabetes and its complication which greatly contributes to patient outcomes (Ghosh *et al.*, 2012; Kamble *et al.*, 2013; Kandhare *et al.*, 2012b; Visnagri *et al.*, 2012, 2014). It has been reported that decrease hemoglobin levels may increase risk for progression of various diseases (Kandhare *et al.*, 2012a, c, d; 2013a-c; Raygude *et al.*, 2012a, b; Kumar *et al.*, 2013; Visnagri *et al.*, 2013).

Past few decades anemia in adolescent girls acquired a vast popularity and increasing identification as a vital public health issue (Bruner *et al.*, 1996). This consequence in multiple programmes to fight under

nutrition and iron deficiency anemia. Supplementation of iron and folic acid once in a week has announced as a potential stratagem to struggle with anemia (Van Wyck *et al.*, 2007). The objective of the national nutritional policy, 1993 was to improve the deprived iron grade of the adolescent girls. Information, communication and education (IEC) material was one of the effective tools while implementing this program at school level in various states of India for beneficiary adolescent girls (Killip *et al.*, 2007). For instance 69,000 school girls were covered under this policy in Gujarat state of India in 2000.

Adolescence has been defined by the world health organization as the period of life where psychological, social and physical transition spanning the ages between 10 to 19 years (WHO, 1983). Girls are more expected to be a sufferer due to diverse reasons (Bruner *et al.*, 1996; Galan *et al.*, 1998). In a family unit with imperfect capital, the female teen is more apt to be neglected. She is underprivileged of good rations and schooling and is utilized as an additional functioning hand to bear the household chores. The supplementary saddle of menstrual blood loss precipitates the crisis too often.

Constitutional homeopathic treatment prearranged at adolescence would go an extensive way in preventing illness and maintaining the physical and mental life form

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in equilibrium of the subject (Dole *et al.*, 2012a, b; Gosavi *et al.*, 2011a, b, 2012). A detailed times past followed by constitutional treatment by a fine and skilled homeopathic understanding is necessary to treat the complaints that come into sight during adolescence especially in anemia. Hence, objective of present investigation was to study the efficacy of ferrum phos 3X alone and along with homeopathic constitutional medicines on hemoglobin level in adolescence girls.

MATERIAL AND METHODS

Study design: This interventional randomized open labeled parallel group study was conducted at Bharati Vidyapeeth Kanya Prashala, in Pune city. The first phase of study was carried out from Jan 2011 to April 2012. The protocol was approved by Institutional Ethics Committee (IEC). Informed consent was obtained from participants and parents prior to the conduct of study. Official and written permission was taken from principal of the school. Subjects were divided in to three groups after randomization i.e., A, B and C, respectively.

Patient selection: Inclusion and exclusion criteria are mentioned below.

Inclusion criteria:

- Adolescent age group (10-18) years old
- Hemoglobin levels < 12 g %

Exclusion criteria:

- Individual with anticipated alteration of ongoing therapy with agents that could interact with the study medication
- Pregnancy
- History of heavy blood loss during menstruation
- Individual with concomitant illness
- Severely anemic (< 9 g %)

Study visits and treatment schedule: On the basis of protocol 219 school girls were screened during the study period. At the screening visit the blood was withdrawn from anticubital veins in Bharati Vidyapeeth Homeopathic Hospital's pathology laboratory. During physical examination health status was evaluated along with physical performance. Total nine girls were excluded according to exclusion criteria as most of them were having troublesome menorrhagia. Hemoglobin was estimated according to cyanmethhemoglobin method (HiCN) (Larsen, 1964). Total three groups namely ferrum phos 3X, ferrum phos 3X along with

constitutional homeopathic medicine and natural control group were formed. At baseline visit all the clinical parameters were accessed including height and weight of each study subject. Formal training and health education through lecture was arranged for principal and parents. Class teachers of respective classes were trained accordingly for distribution of the medicine and scrutiny of follow up and surveillance over dose schedule. Ferrum phos 3X was sponsored from Adven Biotech, Manesar, Haryana, India. Sachets of ferrum phos 3X were distributed with the dose of 4 tables two times a day to be taken in school under the supervision of class teacher for group A. Constitutional medicine was administered individually for group B according to case taking and homeopathic principles by computer repertorization using Kent's repertory. Control group was followed only for monthly health assessment without any intervention. All the groups were followed with the interval of 30 days for clinical and physical examination.

Statistical analysis: Data were expressed as Mean \pm Standard Error Mean (SEM). The data of 'hemoglobin percentage' was analyzed using students "t" test; paired "t" test was applied for *post hoc* analysis. Data of 'percentage survival' was analyzed by using Kaplan-Meier analysis, Log-rank (Mantel-Cox) test was applied for post hoc analysis. Analysis of all the statistical data was performed using GraphPad Prism 5.0 (GraphPad, San Diego, USA). The $p < 0.05$ was considered as statistically significant.

RESULTS

Baseline characteristics of study subjects: Table 1 depicting the mean baseline characteristic of the study subjects. The mean height was found to be 157.5 ± 0.57 cm whereas the 43.49 ± 0.96 kg was the weight of the study subjects. The mean age of the study subjects of the study was 13.92 ± 0.09 years.

Effects of constitutional remedies after repertorization on similia principle: The phosphorus as well as sulfur was found to be the most used remedies by the study subjects. Their frequency i.e., total number of individual girls was found to be 7(15.21%). Lycopodium was the second most remedy used by the study subjects and its frequency was 6 i.e., 13.04%. The

Table 1: Baseline characteristics with various parameters of study subjects that correspond to ferrum phos 3X and constitutional medicine treatment

Baseline characters	Mean \pm SEM
Height (cm)	157.5 ± 0.57
Weight (kg)	43.49 ± 0.96
Age (years)	13.92 ± 0.09

number of study subjects received the Calcarea Carbonicum were 5 (10.86%). Mercury was given to 4 (8.96%) study subjects as the remedy for the treatment. Mercury as well as Sepia as the remedy for the treatment was received by 6.52 % study subjects. Carbo Vegetabilis, Bryonia alba and Ferrum Met were given to 2 (4.34%) study subjects. The least prescribed remedy for the treatment by the study subjects were found to be Pulsatilla, China and Kalium Carbonicum; 1 (2.17%) (Fig. 1).

Effects of Ferrum Phos 3X and its combination with constitutional medicine on hemoglobin levels in study subjects: As depicted in Fig. 2, there was no significant difference ($p < 0.001$) in the hemoglobin percentage of study subjects (11.36 ± 0.15) in the control group before treatment as compared to the study subjects in the control group after treatment (11.49 ± 0.15). Treatment with Ferrum Phosphoricum (Ferrum Phos) 3X showed significant increased ($p < 0.001$) in the hemoglobin percentage of the study subjects after treatment

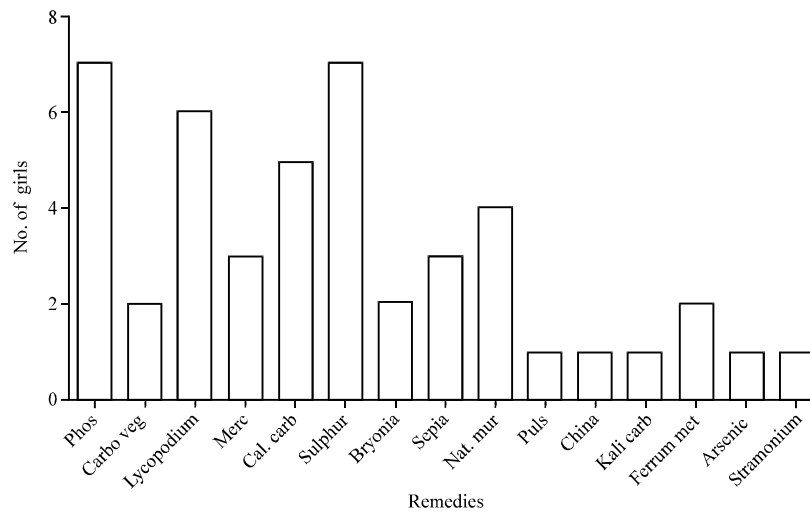


Fig. 1: Effects of constitutional remedies after computerized repertorization subjects in the control group

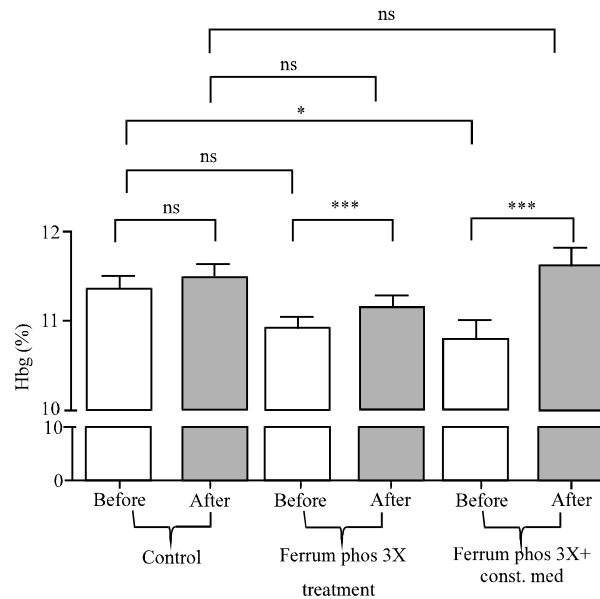


Fig. 2: Effects of ferrum phos 3X and its combination with constitutional medicine on hemoglobin levels. Data is expressed as Mean±SEM and analyzed using students t-test; paired t-test was applied for *post hoc* analysis. * $p < 0.05$ and *** $p < 0.001$ as compared to the respective groups

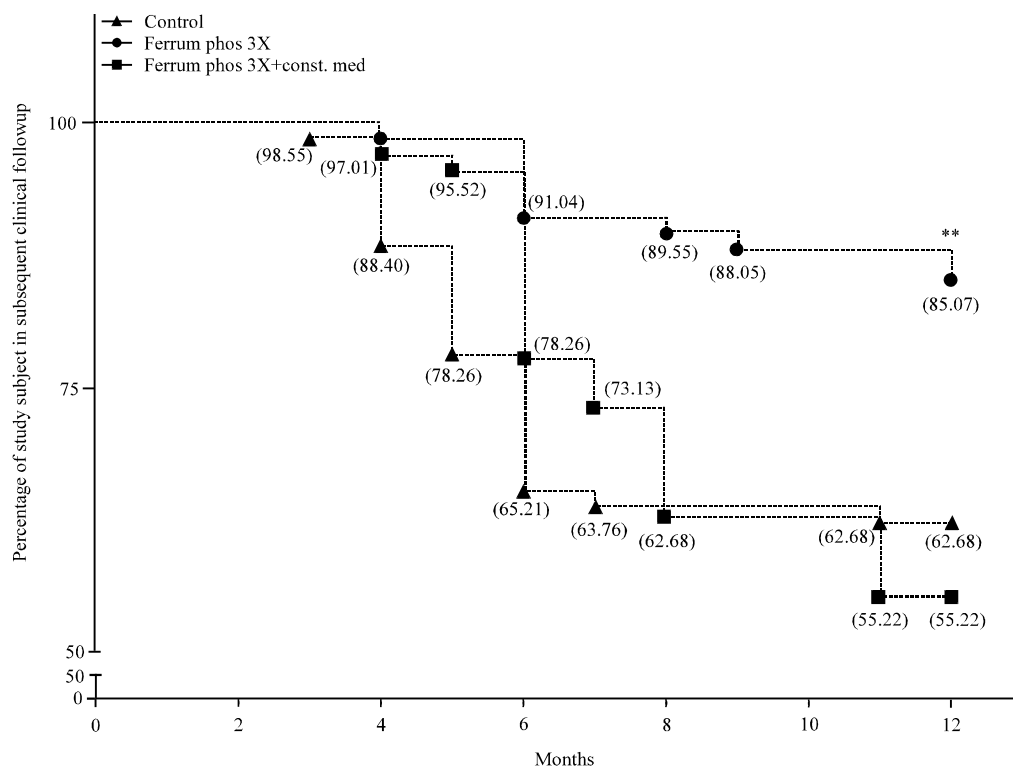


Fig. 3: Percentage of study subjects attended the follow-up visits. Data was analyzed by using Kaplan–Meier analysis, Log-rank (Mantel-Cox) test was applied for *post hoc* analysis ** $p < 0.01$ as compared with the respective groups

(10.91 ± 0.12) as compared to the frequency of the study subjects before treatment (11.16 ± 0.12). There was significant increased ($p < 0.001$) in the hemoglobin percentage of the study subjects after treatments with the combination of ferrum phos 3X and constitutional medicine (11.62 ± 0.19) as compared to frequency of the study subjects before treatment (10.79 ± 0.20) with this combination. The significant difference ($p < 0.05$) was found in the hemoglobin percentage of the study subjects before treatment of the ferrum phos 3X and constitutional medicine as compared to the study.

Percentage of study subjects attended the follow-up visits: The Kaplan-Meier analysis revealed the percentage of the study subjects completed the study course with the intervention of one year. The significant number of study subjects ($p < 0.001$) was found to be complete the study course for intervention of one year in the ferrum phos 3X group and it was 85.07% as compared to control group. The number of study subjects that completed the study course for intervention of one year in the combination of ferrum phos 3X and constitutional medicine was found to be 55.22% and it

was non-significant whereas 62.68% number of study subjects completed the one year study course in control group (Fig. 3).

DISCUSSION

Even though homeopathic treatment has been frequently used for many decades, their effectiveness is still divisive (Gosavi *et al.*, 2011a, b, 2012). No precise explanation for the means of action of homeopathy is presently unanimously accepted, in spite of large and over and over again controversial debate. The aim of present study was to determine effect of ferrum phos 3X and its combination with constitutional medicine, whether there is any evidence from randomized controlled trials that homeopathy is worth for the treatment of anemia in adolescent girls. An impartial finale is of extreme weight in this area because it is a logical, poignant and supporting issue in numerous areas.

Commencing with the existing substantiation, it is expected that between the tested homeopathic treatments tested both ferrum phos 3X and ferrum phos 3X along with constitutional medicine shows an added effect relative to natural control (Mitra, 2012). On the other hand, the power of the evidence for this ending remains

little low down because limitations to motivate more subjects to participate in the study in order to increase accuracy and precision. It is obvious that the strength of available data is sufficient to bring to a close that homeopathy is clinically effective in treatment of anemia in adolescent girls (Ballin *et al.*, 1992; Beutler *et al.*, 1960; Bruner *et al.*, 1996). Homeopathy must be assessed using the similar methodology used for complementary and alternative medicine (Gosavi *et al.*, 2011b, 2012). Additional elegant and modernized clinical trials, counting thousands of patients are considered necessary before classic conclusions can be drawn concerning the clinical efficacy of homeopathic treatments. A clinically pertinent primary outcome should be clearly defined and the intention-to-treat principle was respected.

CONCLUSION

The results of present study suggests that treatment with ferrum phos 3X as well as its combination with constitutional medicine results in increase of hemoglobin levels significantly. Based on the principle of similarity, the homeopathic medicine phosphorus seems indicated in symptoms of anemia, as well as its diathesis. Results of present investigation suggest an action on the impact of anemia, since no adverse event occurred in any group. The action of phosphorus on the anemia should be better studied in anemia.

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