Evaluation of Health Promotion In Elderly People Through Cyavanaprava

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ABSTRACT:

Caraka the renowned physician of Indian system of medicine recommended Cyavanaprava for wide variety of ailments from paediatric to geriatric. So, the paper is focused on the result of the clinical study, that was conducted to evaluate the efficacy of Cyavanaprava in elderly volunteers. And the paper also highlights the step made through this clinical study to evaluate the weight of chief constituent i.e.500 number of fresh Amalaki (Emblica officinalis Gaertn) with proper ratio of sugar.

INTRODUCTION

Health promotion (with a focus on healthy ageing/ageing well) is one among the objectives of new programme on ageing & Health launched by W.H.O., April 1995. The quest for good health, to promote and preserve health and longevity in a healthy individual, Ayurveda the science of life has provided the mankind with an unique gift called Rasayana, References like the great sage Cyavana, having enjoyed such a state with delaying the debility and ageing by appropriate use of the Rasayana formulation “Cyavanaprava”. Caraka the famous Indian physician recommended it for a wide variety of ailments.

On other hand, the drug industries which prepare the Cyavanaprasa are not similar to each other in respect of quality and efficacy even if the formula is same. This variation is probably due to change in its measurement of constituents. The chief ingredient of Cyavanaprava is Amalaki that has been mentioned in the form of Number. Amalaki is available in different sizes and in different weights. Hybrid fruits are also available in the market. And the ratio of sugar also varies form industry to industry.

Therefore, the present study was planned (1) To evaluate the health promotion in elderly volunteers with reference to subjective parameters like appetite, digestion, and sleep etc. (overall health status) & objective parameters like blood lipid metabolism (2) To evaluate the weight of 500 Amalaki with
proper sugar ratio & (3) To determine the effect of Pippali in Cyavanaprava.

**PHARMACEUTICAL PREPARATION**

(Drug selection)

All the ingredients of Cyavanaprava were procured from the pharmacy, N.I.A., Jaipur (the market supplied drugs identified in Pharmacy, N.I.A. with proper identification procedure) except Go-ghrta, which was collects from Shri Lalitha Diary Foods Pvt.Ltd., Satyanarayanapuram, Vijayawada.

The pharmaceutical preparation is involved in conventional method with reference to SOPs & SMPs under G.M.P. guide line.

| Sample Name | No. of Amalaki | Quantity of Amalaki Adopted | Quantity of Sugar Adopted | Quantity of Kwatha and prakapa Dravyas Assumed |
|-------------|----------------|-----------------------------|----------------------------|-----------------------------------------------|
| C<sub>1</sub> | 500            | 6k                          | 7.2 kg                     | →As mentioned in Caraka (Sardha Tula) Samhita |
|             |                |                             |                            | → Pippali and Ela of kwatha dravyas are used in praksepa dravyas |
|             |                |                             |                            | → Vamsalocana is reduced to 40% |
| C<sub>2</sub> | 500           | 2.5k                        | 2.4 kg                     | → As mentioned in Caraka (Cardha Tula ) Samhita |
|             |                |                             |                            | → Pippali and Ela of kwatha dravyas are used in praksepa dravyas. |
|             |                |                             |                            | → Vamsalocana is reduced to 40% |
| C<sub>3</sub> | 500           | 2.5kg                       | 2.4 kg                     | → As mentioned in Caraka (Cardha Tula) Samhita |
|             |                |                             |                            | → Pippali is taken out.(not added) both from kwatha and praksepa dravyas |
|             |                |                             |                            | → Ela of kwatha dravya is used as praksepa dravya. |
|             |                |                             |                            | → Vamsalocana is reduced to 40% |
PHYSICO – CHEMICAL ANALYSIS

The ensure the standardization of good quality and efficacious cyavanaprasa, all the three samples viz sample C₁, C₂ & C₃ were under taken for the physico-chemical analysis & results are presented under.

| Parameter                  | Sample C₁   | Sample C₂   | Sample C₃   |
|----------------------------|-------------|-------------|-------------|
| % of loss on Drying        | 2.007       | 2.39        | 5.37        |
| % of Total Ash             | 2.12        | 2.864       | 2.311       |

Extractive values of different samples in different solvents (in %)

| Parameter                  | Sample C₁   | Sample C₂   | Sample C₃   |
|----------------------------|-------------|-------------|-------------|
| Ethyl Alcohol              | 78.998      | 73.128      | 69.013      |
| Methanol                   | 82.967      | 70.445      | 65.858      |
| Water                      | 78.108      | 65.588      | 65.059      |
| Xylene                     | 5.168       | 9.434       | 8.295       |
| Hexane                     | 4.098       | 8.674       | 9.428       |
| Petroleum ether (40-60o)   | 4.163       | 7.026       | 7.377       |

Quantitative test of different samples

| Parameter                  | Sample C₁   | Sample C₂   | Sample C₃   |
|----------------------------|-------------|-------------|-------------|
| % of Total Fat             | 5.168       | 9.434       | 8.295       |
| % of Total Sugar           | 54.42       | 45.50       | 43.80       |
| % of Total Ascorbic acid   | 0.07        | 0.11        | 0.065       |
| % of Total Tannin          | 3.944       | 3.468       | 3.234       |

MATERIAL AND METHODS

30 number of non-patient elderly volunteers, age between 40 to 70 years of either sex were randomly selected form National Institute of Ayurveda. They were divided into three groups’ viz. Group – A, Group –B & Group –C of 10 each in which Sample Sample C₁, Sample C₂ & Sample C₃ were administered for 40 days regularly, in dosage of 24 gm/day. Vatatapika method was adopted for Rasayana (Cyavanaprasa) sevana.

Excision criteria

1. Individuals with any diagnosed disease.
2. Individuals on any other drug therapy or health promoters.
3. Individuals not likely to co-operate with the trial regimen due to personal compulsion.

Withdrawal criteria

A. Volunteers developing any major sickness during the course of trial.
B. Volunteers developing any adverse reactions during the course of trial

TRIAL ASSESSMENT

The volunteers enrolled for the study were assessed both subjectively and objectively.
on the basis of the proforma priorly designed by the study team. The subjective parameters were designed with Sannikrsta Laksna. Since like appetite, digestion, and sleep etc were assessed. The over all effect on health was determined by sum total of changes (on percentage basis) in individual factors. The objective parameters were assessed with the findings of laboratory investigations of blood lipid metabolism.

General observations like age, sex, religion/caste, occupation, socioeconomic status, marital status of the volunteers was recorded. The dietary Habit, Weight, Pulse, Rate of Respiration, Blood pressure and History of past illness and Occupational health history were also explored.

LABORATORY INVESTIGATIONS

The entire laboratory Investigations were done at Central laboratory, S.M.S. Hospital, Jaipur.

1. Total Cholesterol (mg/dl), 2. Triglycerides (mg/dl), 3. HDL (mg/dl), 4. LDL (mg/dl), 5. VLDL (mg/dl), 6. SGOT (U/l), 7. SGPT (U/l), 8. Hb%(gm/dl).

OBSERVATIONS & DISCUSSION

Under the consideration of aim of the study, 3 types of Cyavanaprasa samples were prepared on the basis of original reference i.e. from Caraka Samhita with a partial modification (kanit parivarttit). In first sample (C₁) – 500 number of fresh Amalaki was considered as 6kg and &.2 kg sugar was added according to the principle “Sardhatula” instead of “Cardhatula”. In second sample (C₂) – 500 number of fresh AMALAKI WAS CONSIDERED AS 2.5 k.g., SUGAR AS PER THE TEXT “Cardhatula” (2.4Kg) and Vamsalocana was reduced to 40%, where the third sample (C₃) is same as second sample but the total amount of Pippali was taken-out from the composition. Scientifically Pippali has been considered as the bio-enhancer (Atal C.K.et al., 1981) Like Amalaki, Caraka Samhita also gives more importance to Pippali in respect to its Rasayana effect as well as dipana (carminative) & pacana (digestive) Guna.

Vamsalocana is an ingredient of praksepa dravya. Due to its unavailability or less availability in trade, artificial vamsalocana has been used. Chemically it is silicon gel and natural Vamsalocana possesses more quality than artificial one (Potash is a chemical constituent absent in artificial Vamsalocana⁵). Through Cyavanaprasa, it acts in the body in intestinal level where it helps in the absorption of Vit – C, Water and balances the Amla guna of Amalaki. In last two samples 500 number of fresh Amalaki was considered as 2.5kg, so that the percentage of yield should be less than that of first sample (500 number of fresh Amalaki equal to 6 kg). Hence too get the quality of the product without change in its action it was reduced to 40% in last two samples (sample C₂ & C₃-77gm each instead of 192 gm).

The Vatatapika method of administration of Rasayana (Cyavanaprasa) was selected because of its ease and practicability and now it is a usage pattern of society. The study was conducted in Rtu sandhi (end of winter and beginning of summer season). All the clinical procedures were followed as per the criteria. One volunteer discontinued the trial (LAMA). None developed any
adverse reactions/illness during or after the study.

The comparative study of 3 types of Cyavanaprasa samples reveals on significant change on physical parameters like pulse rate, respiration rate, blood pressure and body weight and these were within normal range.

Insignificant effects were observed on Adhyavahrana sakti (appetite) and Jarana sakti (digestion powder) but on the percentage basis the effect was more pronounced in group-‘B’ (20% & 14.28%) and in Group-‘A’ (6.66% & 12.5%). Above both these parameters were decreased in Group-‘C’. (6.66% & 6.66%).

Therefore it is be discernible that the sample–C3 had the less digestive power than sample – C1 and sample –C2. Which may prove the absence of Pippali in sample-C3 because katu rasa of Pippali act as dipana (carminative) and tiksna guna act as Yakrt uttejaka (liver stimulator).

Increase in Nidra (Sleep) by sample ‘C1 - 12.5% (P>0.1), Sample C2 – 13.33% (P>0.1) & C3 – 12.5% (P>0.1) in group –‘A’,’B’ & ‘C’ respectively were also statistically insignificant.

The overall health status was carried out through comparative maximum average effects (improvement) on the basis of subjective criteria of assessment. Markedly effect (48.81%) was noticed in Group – ‘B’, average effect (23.39%) was seen in Group – ‘A’, whereas least average effect (18.77%) was recorded in Group – ‘C’

Apart from the overall health status, Significant and maximum percent decrease in Daurbalya (weakness) was registered in group – ‘B’ (66.66%). There is also significant but comparatively lesser decrease in group – ‘C’ (43.47%) and then group – ‘A’ (35.25%) was registered.

Therefore again it can be inferred that all the samples (C1,C2 & C3) imparted Rasayana & Balya effect but comparatively sample-C2 is more effective than sample-C1 and sample-C2 Contains a greater quantity of ‘Yamaka sneha’, active principle of kwatha dravyas, Pippali and average quantity (apx.50%) of sugar in comparison to other two samples. Where, yamaka sneha acts as Rasayana, active principle of kwatha dravyas preserve & improves the ‘vayasthapana’ action of Amalaki and Pippali acts as Rasayana as well as dipana (carminative) & pacana. The action of ‘dipana’ guna also helps to digest the ‘sneha’ guna also helps to digest the ‘sneha’ in the body.

Statistically improvements were observed in all Lipid profile investigations. The cholesterol level showed a significant fall of 19.68% (p<0.02) in Group –‘B’ and 14.52 % (p<0.05) in Group – ‘C’, where a fall of 5.03% (p>0.1) was non-significant in group – ‘A’. (Table No:01) on triglyceride level significant improvement i.e. maximum percent decrease (29.21% p<0.01 ) in group – ‘B’ was registered where as decrease of 13.96% (p<0.1) in group – ‘C’ & 13.91 % (p<0.01) in group – ‘A’ is non-significant to the result. (Table No: 1.2)

The effect of Cyavanaprada samples on LDL level exhibits sample-C2 and sample-C3 had significant effect on Group – ‘B’ (25.4% p<0.05) and on Group – ‘C’ (21.75%, p<0.05) respectively. However, the effect of sample – C1 on group – ‘A’ (5.61%,P<0.1) was non-significant. (Table No:1.4)

Significant Increase in HDL level was common to all three groups. The increase in maximum percentage was observed in
group ‘B’ (4.49%, P<0.01), where group – ‘C’ results 3.69% (p<0.01) & group –‘A’ results 3.24% (P<0.05). (Table No:1.1)

Above mentioned all the results exhibit, the maximum improvements were found in group – ‘B’ which again proves the tremendous effect of sample –C₂ on lipid profiles.

Non-significant minimum percentage increase was seen on SGOT & SGPT level in all three groups. There is No change was observed in Hb% also. But, these were within normal range.

Altered levels (pathological) of these are of potential risk factors in Ischemic heart disease (IHD). The increase in HDL, whose action is to remove cholesterol from peripheral tissues and transport it centripetally for hepatic excretion, observed in the present study is a very important change. The raised levels of HDL are thought to be anti-atherogenic and reduce the risk of coronary heart disease (CHD).

Effect on lipid profile parameters mentioned supra clearly exhibits Cyavanaprasi phalashruti (concluding verse of the formulation) is in two way falls. Except Rasayana effect, it is highly efficacious for all cardiac patients and hyperlipidemic patients which is one of the indication cited in the Phalasruti of the formulation and thus it is proved.

### CONCLUSION

- Statistically significant alteration is lipid profiles i.e. decrease in Cholesterol level, Triglyceride level, LDL level and increase in HDL level (especially maximum improvement in sample C₂) within the normal range exhibits its ripple effects on particular indications those age cited in Phalasruti of this formulation.

- Cyavanaprasa sample C₂ (Composition of Caraka Samhita, under the consideration of 500 number of fresh Amalaki equal to 2.5 kg and the quantity of sugar is “cardhatula”) exerts a high pronounced effect on all subjective and objective parameters than sample C₁ (composition mainly prepared with consideration of 500 number of fresh Amalaki equal to 6kg and quantity of sugar is “Sardhatula”).

- Cyavanaprasa shows a poor effect on elderly people when Pippali is excluded from the formulation.

- All the data of Physico-Chemical analysis concerned to the sample C₂ (Partially modified formulation of Caraka Samhita) can be considered as reference for its standardization.

| Group | Sample | Cholesterol Level | Statistical Analysis |
|-------|--------|-------------------|----------------------|
|       |        | BT (Mean) | AT (Mean) | Dif. | % of Change | S.D | S.E | T value | P value |
| A (n=10) | C₁ | 178.13 | 169.17 | 8.96 | 05.03 | 31.86 | 10.07 | 0.88 | >0.1(N.S) |
| B (n=9) | C₂ | 197.37 | 158.52 | 38.85 | 19.68 | 37.48 | 12.49 | 3.10 | <0.02(S) |

Table :01 Showing the Effect of cyavanaprasi samples on Cholesterol Level
| Group | Sample | HDL Level | Statistical Analysis |
|-------|--------|-----------|----------------------|
| A (n=10) | C_{3} | 185.94 | 158.94 | 27 | 14.52 | 33.95 | 10.73 | 2.51 | <0.05(S) |

Table :1.1 Showing the Effect of cyavanaprasa samples on HDL Level

| Group | Sample | Triglyceride Level | Statistical Analysis |
|-------|--------|-------------------|----------------------|
| A (n=10) | C_{1} | 43.1 | 44.5 | 1.4 | 3.24 | 1.83 | 0.58 | 2.4 | <0.05(N.S) |
| B (n=9) | C_{2} | 42 | 43.88 | 1.88 | 4.49 | 1.36 | 0.45 | 4.15 | <0.01(S) |
| C (n=10) | C_{3} | 42.72 | 44.3 | 1.58 | 3.69 | 1.34 | 0.42 | 3.71 | <0.01(S) |

Table :1.2 Showing the Effect of cyavanaprasa samples on Triglyceride Level

| Group | Sample | VLDL Level | Statistical Analysis |
|-------|--------|------------|----------------------|
| A (n=10) | C_{1} | 33.62 | 28.94 | 4.67 | 13.91 | 7.23 | 2.28 | 2.04 | >0.1(N.S) |
| B (n=9) | C_{2} | 33.41 | 23.65 | 9.76 | 29.21 | 6.72 | 2.24 | 4.35 | <0.01(S) |
| C (n=10) | C_{3} | 33.10 | 28.48 | 4.62 | 13.96 | 6.79 | 2.14 | 2.15 | <0.1(N.S) |

Table :1.3 Showing the Effect of cyavanaprasa samples on VLDL Level

| Group | Sample | LDL Level | Statistical Analysis |
|-------|--------|-----------|----------------------|
| A (n=10) | C_{1} | 101.4 | 95.71 | 5.69 | 5.61 | 26.72 | 8.44 | 0.67 | >0.1(N.S) |

Table :1.4 Showing the Effect of cyavanaprasa samples on LDL Level
|     | C_2  | C_3  |     |     |     |     |     |     |
|-----|------|------|-----|-----|-----|-----|-----|-----|
| B   | 121.96 | 90.97 | 30.98 | 25.4 | 37.59 | 12.53 | 2.47 | <0.05(S) |
| (n=9)|      |      |      |      |      |      |      |      |
| C   | 110.11 | 86.16 | 23.95 | 21.75 | 31.95 | 10.1  | 2.37 | <0.05(S) |
| (n=10)|     |      |      |      |      |      |      |      |

Graph – A : Showing the Effect of the trial on over – all Lipid metabolism

Graph – B : Showing the Effect of the trial on over – all Health Status (on subjective parameters)

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