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RESEARCH ARTICLE

Clinical Efficacy and Safety of *Chyavanaprasha* on Aging in Apparently Healthy Elderly Subjects: A Prospective, Open-label, Multicenter Study

[1]Pitta Srinivas, [2]Sanjaykumar Giri, [3]Sneha Marlewar, [4]K Prameela Devi, [5]Kishore Kumar, [6]R Govind Reddy
[7]Bhagwan Sahai Sharma, [8]Shruti Khanduri, [9]Rakesh Rana, [10]Richa Singhal, [11]Narayanam Srikanth

ABSTRACT

Introduction: Aging is a persistent decline in an individual's physiological and structural attributes with time, and geriatric care has become a top specialty. Ayurveda has suggested regimes for graceful aging and it is included under the spectrum of Rasayana therapy. *Chyavanaprasha* is a preparation that has been mentioned in the classics as an excellent rejuvenator with ability to delay aging and enhance general wellbeing.

Objective: To evaluate the efficacy and safety of *Chyavanaprasha* in improving general body health and quality of life (QOL) in apparently healthy elderly subjects.

Materials and methods: A prospective open-label multiple center clinical study was carried out at three peripheral centers of the Central Council for Research in Ayurvedic Sciences and 214 subjects satisfying the selection criteria were enrolled and were administered *Chyavanaprasha* Lehyam 12 gm twice daily before food with milk for 12 weeks and the effect of the drug was assessed at intervals of 14 days up to 84 days. Paired sample t-test was used to compare mean change in functional exercise capacity by 6 minutes walk test (MWT) and changes in QOL using World Health Organization (WHO) QOL BREF scale from baseline to the 84th day. A p-value of <0.05 was considered significant.

Results: Statistically significant improvement was observed in WHO QOL BREF score (p-value <0.001) and functional exercise capacity: Blood sugar, serum cholesterol, kidney function test, and liver function test (LFT) were within normal limits during the entire trial. No adverse drug reaction or adverse event was reported during the trial period.

Conclusion: *Chyavanaprasha* administered in the above-mentioned dose was found effective and safe in apparently healthy elderly subjects in improving their QOL.

Keywords: Aging, *Chyavanaprasha*, Quality of life, Rasayana, Six minutes walk test.

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[1-8]Research Officer (Ayurveda), [9]Statistical Officer (Statistics) [10]Senior Statistical Assistant (Statistics), [11]Deputy Director General (Ayurveda)

[1,4]Dr. Achanta Lakshmipathi Research Centre for Ayurveda Chennai, Tamil Nadu, India

[2,5]Regional Ayurveda Research Institute for Metabolic Disorders Bengaluru, Karnataka, India

[3,6]Central Ayurveda Research Institute for Cancer, Mumbai Maharashtra, India

[7-11]Central Council for Research in Ayurvedic Sciences, New Delhi, India

Corresponding Author: Bhagwan Sahai Sharma, Research Officer (Ayurveda), Central Council for Research in Ayurvedic Sciences, New Delhi, India, Phone: +919968485854, e-mail: bss_ro@rediffmail.com

INTRODUCTION

According to an estimate, the world population of the elderly is increasing and by the year 2050, adults older than 65 years will comprise 1/5th of the global population. In India, 3.8% of the population are older than 65 years.[1] Globalization and Westernization has changed the worldly outlook of people and aging is now having more implications to the individual and society as this process has now taken a new socioeconomic dimension.[2] Accordingly, Geriatrics is emerging as a major medical specialty worldwide. Conventional system of medicine has nothing much to offer in the core areas of geriatric care except the medical management of the diseases of old age. On the contrary, Ayurveda considers geriatric care as one among the eight branches of *Astanga-ayurveda*.[3]

Aging is a process of gradual physical, psychological, and social change in multidimensional aspects. The main issue in geriatric care is not merely the concern about the physiological phenomenon which is inevitable; rather, it is more about the medical health problems and diseases specifically afflicting an individual in old age warranting medical management in order to sustain a comfortable and healthy life. Aim of *Rasayana Chikitsa* is to address two-fold problems; retard the rate of physiological aging; and manage any diseases that arise due to aging.[4,5] Ayurveda, being fundamentally the science of life and longevity, seems to have addressed these issues

in a unique holistic manner involving not merely the biological care but also encompassing the psychosocial and spiritual dimensions. There are strong possibilities to develop a safe and cost-effective package for geriatric care through incorporation of Ayurvedic lifestyle management, *Rasayana therapy* and practice of *Yoga*.

According to *Charaka Samhita*, use of *Rasayana* helps in attaining longevity, memory, intelligence, health, youthfulness, excellent complexion, luster, voice quality, strength of body and sense organs, and produce excellence of *Rasadi Dhatus*.[6,7] *Rasayana* can bring about harmony of deranged *dosha* in the body and prevent augmented rate of natural degeneration in the body.

Rasayana provides drug base therapy and remedial measure in the form of *pathya, prasamana,* and *prakrtistthapaka*.[8] They act as immuno-modulators and ensure that the defense mechanisms of body are in excellent working condition. The first reference for *Chyavanaprasha* is available in the Charaka Samhita.[9] Ashwini Kumara, who were the royal physicians during Vedic period, first prepared this for Chyavana Rishi and hence it is named as *Chyavanaprasha*. It has wide range of therapeutic efficacy as it acts on multiple sites and is effective in *Swarakshaya, Uroroga, Hrudroga, Vatarakta, Pipasa, Mootra,* and *Shukra Sthanagatha Dosha*. It also improves *Medhashakti, Smaranashakti* and increases the lifespan.[9]

The study was undertaken to evaluate the *Rasayana* effect and clinical safety of *Chyavanaprasha* in apparently healthy elderly individuals.

AIMS AND OBJECTIVES

To evaluate the efficacy and safety of *Chyavanaprasha* in improving general body health and QOL in apparently healthy elderly subjects.

MATERIALS AND METHODS

Study Design

An open-labeled prospective multicenter clinical trial was conducted at three peripheral centers of Central Council for Research in Ayurvedic Sciences (CCRAS), Ministry of AYUSH. The study protocol and related documents were reviewed and approved by the Institutional Ethics Committee of each participating center and the study was done in accordance with WHO-Good Clinical Practice Guidelines. The trial has been registered in the Clinical Trial Registry of India (CTRI/2016/03/006701).

Study Participants

A total of 214 subjects were enrolled in the trial from three peripheral institutes of CCRAS, viz., Dr. Achanta Lakshmipathi Research Centre for Ayurveda (ALRCA), Chennai; Central Ayurveda Research Institute for Cancer (RRAPCARIC), Mumbai; Regional Ayurveda Research Institute for Metabolic Disorders (RARIMD), Bengaluru, India. Patients were screened in accordance with the inclusion and exclusion criteria mentioned in the protocol and were recruited in the study after obtaining their written informed consent.

Inclusion Criteria

Apparently healthy males/female volunteers of age between 60 and 75 years and those who were willing to participate for 12 weeks were included.

Exclusion Criteria

Patients with evidence of malignancy; those who had participated in similar study previously or participating in any ongoing study; patients suffering from systemic illness necessitating long-term drug treatment (rheumatoid arthritis, psychoneuroendocrinal disorders, etc.); patients suffering from cardio vascular diseases, diabetes mellitus with >6% glycated hemoglobin (HbA1c); patients with concurrent hepatic disorder (defined as aspartate aminotransferase and/or alanine aminotransferase >2 times upper normal limit) or renal disorders (defined as serum creatinine > 1.2 mg/dL); patients with pulmonary dysfunction (bronchial asthma and/or chronic obstructive pulmonary disease ; inflammatory bowel disease, severe dementia, severe infection(s), nonambulatory patients or any other condition that may jeopardize the study; alcoholics or drug abusers and other psychiatric diseases; patients whose participation in any other clinical trial during the past 6 months or any other condition which the investigator thinks may jeopardize the study in any way were excluded from the trial.

Study Interventions

Chyavanaprasha [Ayurvedic Pharmacopoeia of India (API), Part-II, Pages 13–16] in the form of lehya was administered in a dose of 12 gm twice daily on empty stomach along with milk in the morning and evening for a period of 12 weeks (i.e., 84 days). The formulation was procured from good manufacturing practice-certified Ayurvedic Pharmaceutical Company and standardized following the standards laid in API.

Chyavanaprasha Ingredients

Chyavanaprasha[10] is a time-tested *Rasayana* that has been mentioned in classics, having more than 40 ingredients. The chief ingredient of *Chyavanaprasha* is Amalaki, which is a known antioxidant and rich source of vitamin C (Table 1).

Table 1: Ingredients of *Chyavanaprasha*

Bilwa (*Aegle marmelos*)	Agnimantha (*Premna corymbosa*)
Shyonaka (*Oroxylum indicum*)	Gambhari (*Gmelina arborea*)
Patala (*Stereospermum suaveolens*)	Bala (*sida cordifolia*)
Mashaparni (*Teramnus labialis*)	Mudgaparni (*Vinatri lobata*)
Prishnaparni (*Uraria picta*)	Shalaparni (*Desmodium gangeticum*)
Pippali (*Long pepper*)	Gokshura (*Tribulus terrestris*)
Brihati (*Solanum indicum*)	Kantakari (*solanum xanthocarpum*)
Karkatashrungi (*Pistasia integerrima*)	Taamalaki (*phyllanthus fraturnus*)
Draksha (*Dry grapes*)	Jeevanti (*Leptodenia reticulata*)
Pushkaramula (*Inula racemosa*)	Agaru (*Aquilaria agallocha*)
Hareetaki (*Terminalia chebula*)	Amrita (*Tinospora Cardifolia*)
Vrriddhi (*Habenaria intermedia*)	Jeevaka (*Microstylis muscifera*)
Rushabhaka (*Malaxis muscifera*)	Shati (*Hedychium spicatum)*
Musta (*Cyperus rotundus*)	Punarnava (*Boerhaavia diffusa*)
Meda (*Polygonatum cirrhifolium*)	Ela (*Elettaria cardamomum*)
Chandana (*Santalum album*)	Utpala (*Nymphaeastellata*)
Vidarikhanda (*Pueraria tuberosa*)	Vrushamoola (*Adhatoda vasica*)
Kakoli (*Lilium poilyphyleum*)	Kakanasika (*Martynia diandra*)
Amalaki (*Emblica officinalis*)	Jala (water)
Ghrita (Ghee)	Tilataila (*Sesmumindicum* oil)
Sarkara (Sugar)	Madhu (Honey)
Vamsalochana (*Bambusa bambos*)	Prakshepaka dravyas (twak, ela, patra)

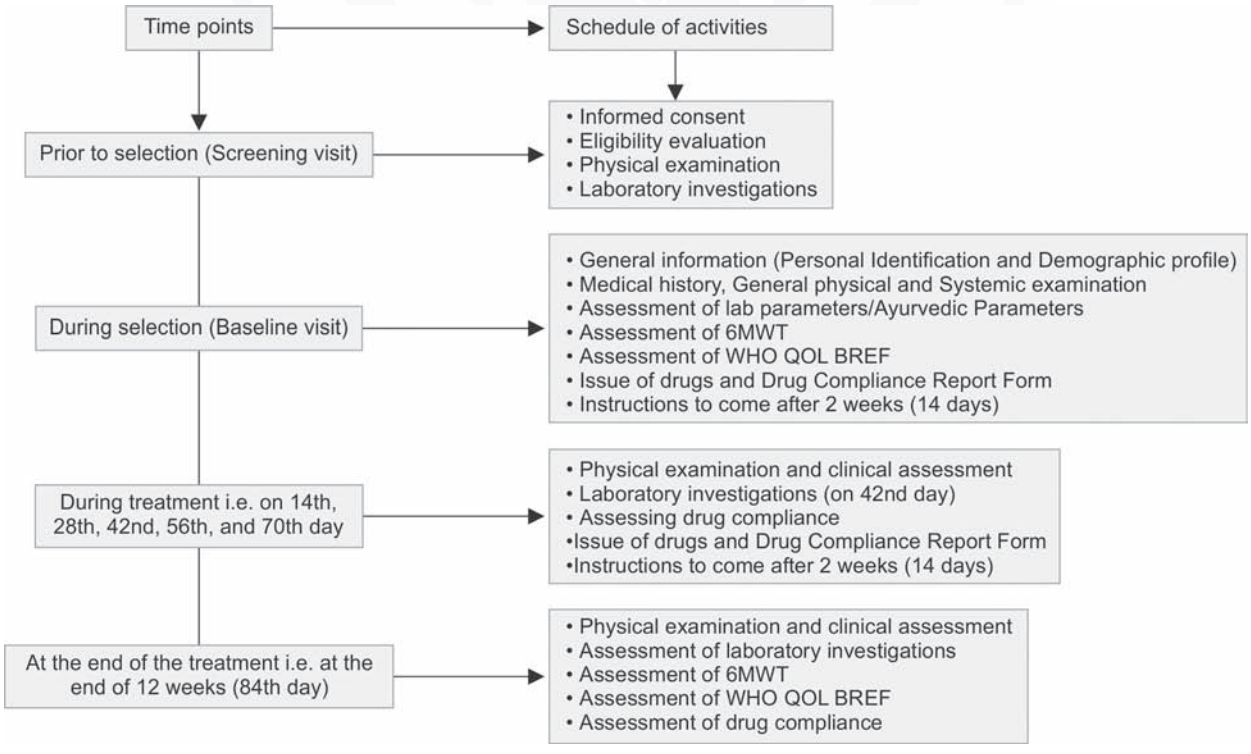
Study Procedure

On screening visit, subject's voluntary written informed consent was taken. On the enrolment day at baseline (Visit 1), patient's demographic profile, medical history, family history, *sharirik prakriti* vital parameters, assessment of QOL using WHO QOL BREF scale and assessment of 6 MWT were recorded. Subsequent visits were planned at an interval of 14 days [14th day (Visit 2), 28th day (Visit 3), 42th day (Visit 4), 56th day (Visit 5), 70th day (Visit 6), and 84th day (Visit 7)]. Patients were assessed and given study medications at each subsequent visit till 84th day. There was also without medication follow-up after every 14 days after the 84th day visit. Details of clinical assessment and study schedule are given in Flow Chart 1.

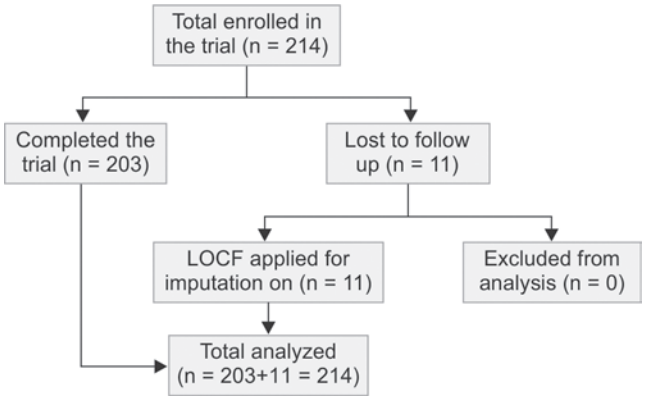
At the study site, data of all the subjects were recorded in predesigned Case Report Forms (CRFs) and was also entered in electronic formats (e-formats) designed in MS-Excel with many data validation checks to ensure correct data entry. The e-format and Xerox of the CRFs along with laboratory investigations reports of the subjects were sent by the participating centers to the Council's (CCRAS) headquarters on weekly basis for the purpose of clinical trial monitoring.

Out of the total 214 subjects enrolled in the study, 11 dropped out during the course of the study. Intention-to-treat analysis was done and the data of all those participants who have completed at least 14th day visit were imputed by last observation carried forward (LOCF)

Flow Chart 1: Study schedule



Flow Chart 2: Details of the study



method. Hence, data of total 214 subjects/participants were used for statistical analysis (Flow Chart 2).

RESULTS

Outcomes

Primary outcome measures were changes/any improvement in metabolic profile or changes in the laboratory parameters. The secondary outcome measures were any change (improvement) in functional exercise capacity by 6 MWT (6-MWT measures the distance an individual is able to walk over a total of 6 minutes on a hard, flat surface. The goal is for the individual to walk as far as possible in 6 minutes. The individual is allowed to self-pace and rest as needed as they traverse back and forth along a marked walkway. The 6-MWT was developed by Balke[11] to evaluate functional capacity) and changes in QOL using WHO QOL BREF scale[12] (from baseline to the end of 12th week); The four domain scores denote an individual's perception of QOL in each particular domain. Domain scores are scaled in a positive direction, i.e., higher scores denote higher QOL. The mean score of items within each domain is used to calculate the domain score. Mean scores are then multiplied by 4 in order to make domain scores comparable with the scores used in the WHO QOL-100).

Statistical Analysis

Primary outcome and secondary outcome measures, i.e., metabolic profile, laboratory parameters, changes in QOL using WHO QOL and functional exercise capacity by 6 MWT were analyzed as mean change in the response from baseline to 84th day by using paired t-test. A p-value of <0.05 was considered significant. Analysis was carried out using Statistical Package for the Social Sciences version 15.0.

Data of a total 214 subjects (122 males and 92 females) were used for statistical analysis. Out of which, maximum subjects, 113 (52.8%) were in the age group of 61 to 65 years. Table 2 shows the demographic profile of the subjects. Seventy-seven (27.3%) subjects were of *Pitta-kaphaja sharirik prakriti,* followed by *vata-pittaja* 56 (19.9%).

Table 2: Demographic profile of the subjects

Variable	*n (%)*
Age group	
61–65	113 (52.8)
66–70	70 (32.7)
71–75	31 (14.5)
Sex	
Male	122 (57.0)
Female	92 (43.0)
Marital status	
Married	171 (79.9)
Unmarried	10 (4.7)
Widow(er)	33 (15.4)
Educational status	
Illiterate	21 (9.8)
Read and write	193 (90.2)
Socioeconomic status	
Above poverty line	197 (92.1)
Below poverty line	17 (7.9)
Habitat	
Urban	205 (95.8)
Semiurban	3 (1.4)
Rural	6 (2.8)
Sharirik Prakriti	
Vataja	27 (9.6)
Pittaja	48 (17.0)
Kaphaja	45 (16.0)
Vata-Pittaja	56 (19.9)
Vata-Kaphaja	28 (9.9)
Pitta-Kaphaja	77 (27.3)
Sannipataja	01 (0.4)

It was also observed from the data that 171 (79.9%) of the subjects were married; 193 (90.2%) were literate enough to read and write. Maximum number of subjects, 112 (52.3%) were housewives and were indulged in domestic work, which included physical labor also. Maximum numbers of subjects, 205 (95.8%) were residing in urban area. It was also noticed that 79 (36.9%) subjects were vegetarians, while 135 (63.1%) subjects were non-vegetarians, addiction of any kind was not found in 171 (79.9%) subjects, while smoking and chewing tobacco were observed in 10 (4.7%) and 11(5.1%) respectively; 187 (87.4%) subjects were nonalcoholic and 27 (12.6%) had the habit of taking alcohol occasionally.

Vital parameters of the subjects recorded at baseline are shown in Table 3. Mean systolic blood pressure was 123.06 and mean diastolic blood pressure was 79.30. Mean pulse rate and respiratory rate was 74.10 and 16.41 respectively at baseline.

Effect of the study medications was also assessed by paired t-test on hematological parameters and metabolic

Table 3: Distribution of subjects according to physical parameters

Physical Parameters (n = 214)	*n (%)*
Height (m)	1.56 (0.100)
Weight (kg)	61.93 (12.121)
Respiratory rate (per min)	16.41 (2.598)
Pulse rate (per minute)	74.10 (6.056)
Blood pressure (mm Hg)	
Systolic	123.06 (10.149)
Diastolic	79.30 (7.682)

Values are expressed as mean (standard deviation)

profile compared between baseline and 84th day. No statistically significant changes were observed in these parameters. Table 4 and Graph 1 shows the results of the analysis on hematological parameters and metabolic profile like high-sensitivity C-reactive protein (hs-CRP), sugar levels, HbA1c, and lipid profile. There was no significant change in serum cholesterol, serum triglycerides, random blood sugar, postprandial blood sugar, total leukocyte count (TLC), or erythrocyte sedimentation rate (ESR) at the end of the trial period, which implies that it is safe to be used in elderly patients, without the risk of getting afflicted with such diseases.

Safety Profile

The effect of this treatment on various safety parameters, such as LFT and renal function test (KFT) were assessed on baseline and on 84th day visit. The values are within the normal limits before and after the trial. Table 5 and Graph 2 show the effect of *Chyavanaprasha* on the safety parameters.

Assessment Parameters

Effect of study medication was assessed by paired t-test on changes (improvement) in functional exercise capacity by 6 MWT and changes in QOL using WHO QOL BREF compared between baseline and on 84th day. Table 6, Graphs 3 and 4 show the effect of the drugs on the assessment parameters. In all the domains of WHO QOL BREF score, physical health, psychological health, social relationships, and environmental aspects, statistically significant change ($p < 0.001$) was observed at the end of the trial period. This signifies the role of *Rasayana* in providing nourishment to *rasadi dhatu*. All round betterment is produced by *Rasayana* in physical, mental, and social health of apparently healthy elderly persons.

Table 4: Effect of the treatment on hematological parameters

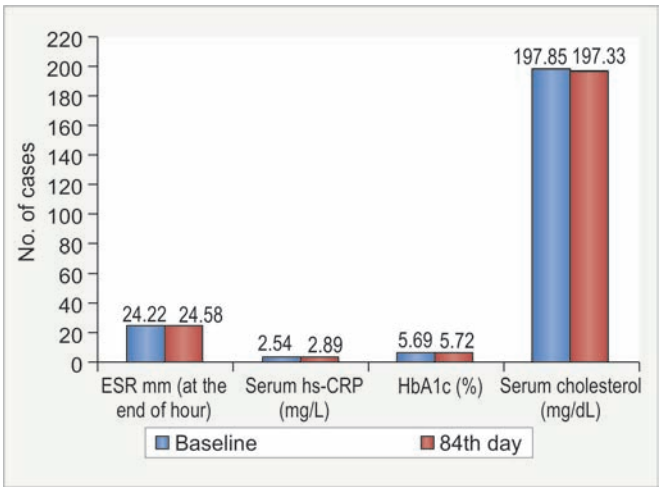
Parameters (n = 214)	*Baseline*	*84th day*	*$t-value*	**p-value*
Hemoglobin (gm/dL)	13.34 (1.702)	13.31 (1.631)	0.641	0.522
TLC/cu.mm	5371.59 (2588.241)	5332.90 (944.309)	0.599	0.550
ESR (mm, at the end of 1st hour)	24.22 (18.044)	24.58 (17.716)	0.435	0.664
Serum hs-CRP (mg/L)	2.54 (2.602)	2.89 (3.103)	1.695	0.092
Blood sugar fasting (mg/dL)	91.74 (9.873)	93.07 (10.884)	2.042	0.042
Blood sugar postprandial (mg/dL)	114.97 (24.543)	118.98 (25.988)	2.857	0.012
HbA1c%	5.696 (0.366)	5.72 (0.372)	1.032	0.144
Serum cholesterol (mg/dL)	197.85 (40.734)	197.33 (42.518)	0.302	0.763
Serum triglycerides (mg/dL)	119.60 (56.408)	121.51 (51.276)	0.734	0.464
LDLC (mg/dL)	134.68 (38.788)	135.14 (37.669)	0.300	0.765
HDLC (mg/dL)	43.756 (10.941)	42.56 (11.326)	3.391	0.001
VLDL (mg/dL)	23.95 (11.256)	24.30 (10.231)	0.656	0.513

Compared using paired t-test at baseline and 84th day; $Values are expressed as mean (standard deviation); *p-value <0.05 has been considered as significant; LDLC: Low-density lipoprotein cholesterol; HDLC: High-density lipoprotein cholesterol; VLDL: Very low-density lipoprotein cholesterol

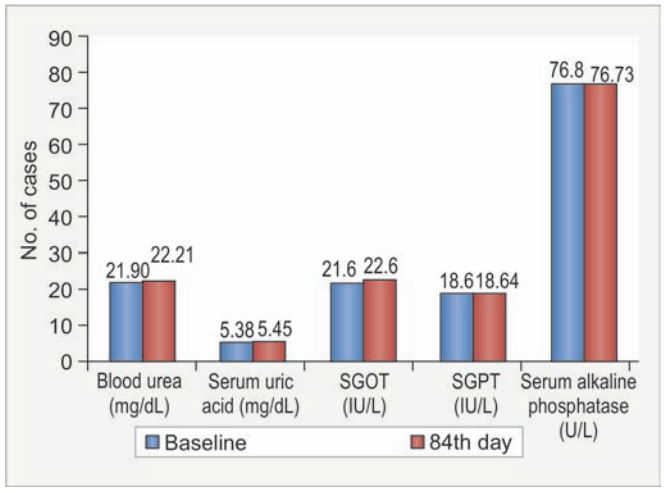
Table 5: Effect of the treatment on safety parameters

Parameters (n = 214)	*Baseline*	*84th day*	*$t-value*	**p-value*
Blood urea (mg/dL)	21.90 (6.840)	22.21 (6.886)	0.717	0.474
Serum uric acid (mg/dL)	5.38 (1.250)	5.45 (1.235)	1.264	0.208
Serum creatinine (mg/dL)	0.94 (0.196)	0.94 (0.198)	0.586	0.559
SGOT (IU/L)	21.60 (8.648)	22.60 (9.190)	1.963	0.051
SGPT (IU/L)	18.60 (11.425)	18.64 (11.114)	0.063	0.950
Total protein (g/dL)	7.09 (0.484)	7.05 (0.461)	1.121	0.264
Serum albumin (g/dL)	4.22 (0.2653)	4.21 (0.251)	0.615	0.539
Serum globulin (g/dL)	2.86 (0.526)	2.84 (0.503)	0.952	0.342
Conjugated bilirubin (mg/dL)	0.19 (0.166)	0.18 (0.175)	1.217	0.225
Unconjugated bilirubin (mg/dL)	0.54 (0.300)	0.54 (0.269)	0.577	0.565
Serum alkaline phosphatase (U/L)	76.80 (22.909)	76.73 (22.805)	0.082	0.935

Values are expressed as mean (standard deviation), $Compared using paired t-test at baseline and 84th day, *p-value of <0.05 has been considered as significant; SGPT: Siamane glutamate pyruvate transaminase; SGOT: Serum glutamic oxaloacetic transaminase



Graph 1: Effect of *Chyavanaprasha* in hematological parameters

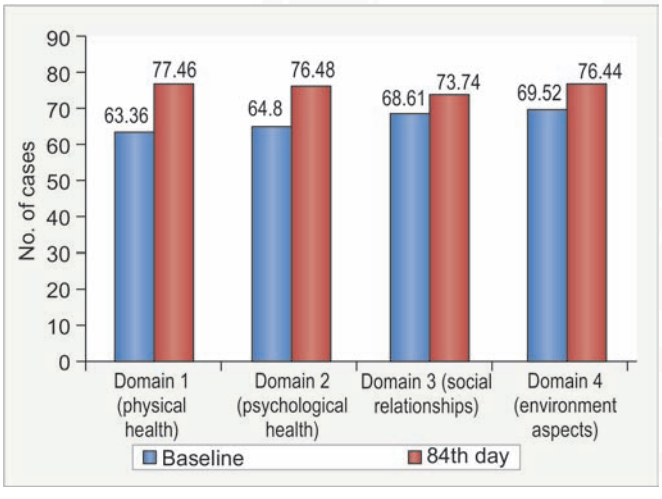


Graph 2: Effect of treatment on safety parameters

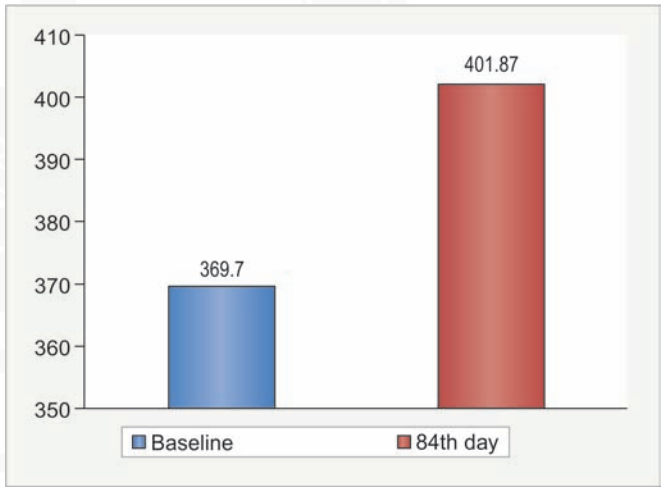
Table 6: Effect of the treatment on assessment parameters

Parameters (n = 214)		*Baseline*	*84th day*	*$t-value*	**p-value*
WHO-QOL BREF score					
Domain 1	(Physical health)	63.36 (11.869)	77.46 (11.409)	15.665	<0.001
Domain 2	(Psychological health)	64.80 (11.838)	76.48 (13.067)	11.514	<0.001
Domain 3	(Social relationships)	68.61 (11.342)	73.74 (12.538)	7.284	<0.001
Domain 4	(Environment aspects)	69.52 (11.422)	76.44 (12.200)	9.009	<0.001
6 MWT (m)		369.70 (82.824)	401.87 (85.911)	12.284	<0.001

Values are expressed as mean (standard deviation), $Compared using paired t-test at baseline and 84th day; *p-value of <0.05 has been considered as significant



Graph 3: Effect of treatment on WHO QOL BREF



Graph 4: Effect of treatment on 6 MWT

A significant increase ($p < 0.001$) in 6 MWT and QOL was seen from baseline value and at the end of the treatment period, which implies that *Rasayana* is effective in enhancing the level of physical activity, which is an indicator of improved status of body tissues, specifically blood, muscle, and bone.

Effect of the study medications was assessed in improving the subjects functional capacity in terms of Ahara Shakti (Appetite) and Vyayama Shakti (Exercise) when compared with baseline to 84th day and the data is given in Table 7. There was significant improvement in *Aharashakti* of the individuals at the end of the trial period. The number of individuals with *Pravara Agni* increased from 16 (7.5%) to 117 (54.7%). *Vyayama Shakti* improved to Pravara in 145 (67.8%) when compared with 94 (43.9%) at baseline.

DISCUSSION

Aging is defined as a progressive breakdown of homoeostatic adaptive responses of the body. The consequences

Table 7: Effect of the treatment on ayurvedic parameters

Ayurvedic parameters	*Grading*	*Baseline*	*84th day*
Ahara Shakti	*Pravara (very good)*	16 (7.5%)	117 (54.7%)
	Madhyama (average)	194 (90.7%)	96 (44.9%)
	Avara (lower)	4 (1.9%)	1 (0.5%)
Vyayama Shakti	*Pravara (very good)*	94 (43.9%)	145 (67.8%)
	Madhayama (average)	113 (52.8%)	67 (31.3%)
	Avara (lower)	7 (3.3%)	2 (0.9%)

Values are expressed as n (%)

of aging appear after reproductive age. However, aging is distinct from mortality and disease, although aged individuals are more vulnerable to diseases.[13] *Vardhakya* or *jara* avastha is a natural phase in human life where *dhatu* undergoes natural senescence primarily under the influence of *kala* and is classified under *Swabhavabalapravrtta Vyadhi*. *Sushruta* holds the view that, in this phase, there occurs day-to-day decrement in *Dhatu*, sensory-motor system, strength, virility, enthusiasm associated with wrinkles, graying, baldness, frequent attacks of cough, breathlessness, etc. and will be unable to do one's own functions.[14] Geriatric care should include care of *Vridha-Vata*, regulation of *Agni,* maintenance of *Dhatu* integrity, patency of *Srotas* and enhancement of *Ojas. Rasayana* drugs can act at the level of *Srotases* and *Dhatus* and prevent enhanced biodegradation of tissue and thereby help in delaying the mechanism of aging. Acharya Charaka was the first to mention about *Chyavanaprasha* and explains that it is the *Rasayana* par excellence[15] and can be used by everyone irrespective of their *Vayah* and *Avastha*.

The primary action of *Chyavanaprasha* is to strengthen the immune system and to support the body's natural ability to produce hemoglobin and white blood cells.[16] It is effective in *bala*, *vridha,* and *kshata ksheena* for *dhatu pushti* and is effective in cardiovascular diseases, cough, dyspnea, rheumatic diseases, and diseases of urogenital tract.[17] It can compensate the action of *prakupita vata*, augment *agni*, promote intellect, and provide clarity for mental attributes and virility.[18] As a result, it is a highly admired *Rasayana*, offering deep nourishment to the tissues, preserving youth, and promoting systemic health and wellbeing.[19]

The statistical analysis of the results of the effect of drug on outcome parameters shows that it has produced highly significant change in functional exercise capacity by 6 MWT by 84th day, compared with baseline with $p < 0.001$. The increase in the distance walked indicates improvement in basic mobility, which might be due to increased efficiency of musculoskeletal system. Statistically significant change was observed in four parameters of WHO QOL BREF scores: Domain 1 (physical health) ($p < 0.001$), Domain 2 (psychological) ($p < 0.001$), Domain 3 (social relationship) ($p < 0.001$), and Domain 4 (Environment) ($p < 0.001$) at 84th day compared with baseline. This proves that *Chyavanaprasha* has produced multilevel improvement in QOL of individual. It was also observed that *Aharashakti* (Appetite) and *Vyayama Shakti* (Exercise) of the participants improved when compared before and after the trial. No significant change was observed in metabolic or hematological parameters during the entire trial period, which proves that this can be used as a general nourishing lehya.

Safety parameters like LFT and KFT were assessed on baseline and on 84th day visit. These values were observed to be within the normal limits during and after the study, and hence this formulation can be considered safe for use, even in elderly people.

Chyavanaprasha can be considered as a drug with excellent action in the human body in molecular and tissue level as it acts by reducing the rate of natural cell senescence in the body, improves body performance, brings clarity to mind, and rejuvenates the body as a whole.

CONCLUSION

The properties or beneficial effects of *Rasayana* mentioned in the classics can be correlated with Adaptogenic property.[20] These Adaptogens normalize body functions, strengthen systems, promote homeostasis, and have a protective effect against a wide variety of cellular stress. As described by enlightened sages in classical Ayurveda, the functional exercise capacity, physical, psychological, social, and environmental aspects as mentioned in the WHO QOL has been improved with *Chyavanaprasha*. It can be concluded that "*Chyavanaprasha*" is very much effective in improving the QOL, functional exercise capacity, and other physiologic activities in terms of *Ahara Shakti* (Appetite) and *Vyayama Shakti* (Exercise) of the apparently healthy elderly participants due to *Vayashtapana* (age-stabilizing) property of *Chyavanaprasha.*

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हिन्दी सारांश

स्वस्थ प्रौढ़ व्यक्तियों में *च्यवनप्राश* की सुरक्षा एवं प्रभावकारिता एक बहुकेंद्रीय – चिकित्सीय अध्ययन

[1]पिट्टा श्रीनिवास, [2]संजय कुमार गिरी, [3]स्नेहा मारलेवर, [4]के प्रमिला देवी, [5]किशोर कुमार [6]आर गोविंद रेड्डी, [7]भगवान सहाय शर्मा, [8]श्रुति खंडूड़ी, [9]राकेश राणा, [10]ऋचा सिंघल [11]नारायणम श्रीकांत

भूमिका: व्यक्ति की शारीरिक एवं संरचनात्मक विशेषताओं में समय के साथ होने वाली निरन्तर क्षय/उम्र बढना है/कहलाती है। स्वस्थ प्रौढ़ व्यक्तियों की अबादी की देख भाल की विश्व की स्वास्थ्य सेवाओं में एक महत्वपूर्ण हिस्सा बन गई है क्योंकि प्रौढ़ आबादी का अनुपात बढ़ रहा है। आयुर्वेद ने रसायन चिकित्सा के अंर्तगत स्पेक्ट्रम के अंर्तगत सुखद वृद्धावस्था के लिए व्यवस्थाओं का सुझाव दिया है। *च्यवनप्राश* आयुर्वेद में वर्णित एक उत्कृष्ट युवावस्था प्रदान करने वाल औषधि है जो वृद्धावस्था को विलम्बित करने तथा सामान्य स्वास्थ्य के बढ़ाने में सक्षम है।

उद्देश्य: आम तौर पर स्वस्थ प्रौढ़ लोगों में शारीरिक स्वास्थ्य तथा जीवन की गुणवत्ता में सुधार हेतु *च्यवनप्राश* की प्रभावकारिता तथा सुरक्षा का मूल्यांकन।

साधन एवां विधि: ओपन लेबल स्तर का बहुकेंद्रीय अध्ययन सीसीआरएएस के तीन अधीनस्थ सस्थानों में किया गया जिसमें संस्थान में किया गया जिसमें संस्थानों के बाह्य रोगी विभाग से 214 लोगों को शामिल किया गया जो कि चयन मापदंडों को पूर्ण कर रहे थे। रोगियों को *च्यवनप्राश* अवलेह 12 ग्राम की मात्रा में दिन में दो बार भोजन से पूर्व दूध के साथ 12 सप्ताह तक दिया गया तथा प्रत्येक 14 दिवस पर औषध के प्रभाव का आंकलन किया गया। युग्मित टी –टेस्ट का प्रयोग छः मिनट के वॉक टेस्ट द्वारा कार्यात्मक व्यायाम क्षमता में औसत परिवर्तन की तुलना में किया गया तथा डब्ल्युएचओ क्यूओएल बीआरईएफ मापदंड के अनुसार आधारभूत दिवसीय 84 दिवस पर जीवन गुणवत्ता में आयें परिवर्तन की तुलना की गयी। जिसमें पी –मान <0.05 को महत्वपूर्ण माना गया।

परिणाम: साख्यिकीय स्तर पर डब्लयुएचओ क्यूओएल बीआरईएफ मापदंड में (पी.मान <0.001) तथा कार्यकारी व्यायाम क्षमता में महत्वपूर्ण परिवर्तन प्राप्त हुए। रक्त शर्करा, सीरम कोलेस्ट्राल, वृक्क की कार्य क्षमता अध्ययन के समय सामान्य रही। सम्पूर्ण अध्ययन के दौरान औषधि की किसी भी प्रकार की प्रतिकूल प्रतिक्रिया प्राप्त नहीं हुई।

निष्कर्ष: उपरोक्त निर्दिष्ट मात्रा में *च्यवनप्राश* का उपयोग करने पर यह ज्ञात हुआ है कि यह स्वस्थ प्रौढ़ में उनके जीवन की गुणवत्ता में सुधार करने में पूर्णरूप से सक्षम, प्रभावशाली एवं सुरक्षित है।

मुख्य शब्द: *च्यवनप्राश*, रसायन, 6 मिनट वॉक टेस्ट, प्रौढ़, जीवन की गुणवत्ता।