



Clinical Research

Critical study of *Jara* (aging) and its managementNisha Parmar, Mahesh Vyas¹, Hitesh Vyas²

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Abstract

Jara Avastha (stage of old age) is the later phase of life in which maximum decline of bodily elements is observed. *Paramanuvibhaga* (cell division) takes place at every moment; particularly in old age, it will be fast in comparison with other phases of life. Some organ related changes also take place during this period, which are the decades of *Balya*, *Vridhhi*, *Chhavi*, *Medha*, *Twak*, etc., In this study, applied aspects of *Medha Hani*, *Twak Hani*, and *Drishti Hani* were evaluated subjectively as well as objectively. Patients were selected from the OPD of Department of Basic Principles, I.P.G.T. and R.A., Gujarat Ayurved University, Jamnagar, irrespective of their sex, caste, religion, etc., and randomly divided into two groups. Patients in Group A were treated with *Panchagavya Ghrita* and Group B with plain *Go Ghrita* for 90 days and the dose of drug was 10 g/day at *Nirannakala* (early morning with empty stomach). Both groups showed significant results, the difference in between the groups is statistically insignificant.

Key words: Aging, *Drishti Hani*, *Jara*, *Medha Hani*, *Panchagavya*, *Twak Hani*

Introduction

Jara^[1] is a term which indicates the declining phase, especially old age or aging process. In other words, it is a catabolic procedure. For example, if the word *Jara* is used in relation to *Ahara Pachana*, it denotes digestion of food; if a person eats *Ushana*, *Snigdha Ahara*, it gets digested easily.^[2] If it is used for age, it means a process in which body elements get decreased continuously. Representing this phenomenon, *Acharya Sharangdhara* has narrated decade wise decline conditions:^[3] In the 1st decade, *Balyavastha* (infancy) will be diminished, in the 2nd decade *Vridhhi* (growth), in the third decade *Chhavi* (complexion), in the fourth decade *Medha* (intellect), in the 5th decade *Twak* (skin), in the 6th decade *Drishti* (vision), and so on. It indicates that continuous catabolic changes are taking place in the body and it happens because of degradation of body elements (*Paramanu Vibhaga*).^[4] *Acharya Charaka* has clearly mentioned that “vitiating of any substance has specific cause and it is responsible for the vitiating of body elements.”^[5] Vitiating is always based on vitiates; *Rasa Vagbhata*^[6] has quoted that *Jara Avastha* appears because of *Pantha* (excessive walking or traveling), *Sheetam* (cold or frozen food), *Kadanna* (food

articles which are devoid of *Jeevaniya* properties), and *Manas Pratikulata* (improper condition of mind). All these causes are responsible for *Akalaja Jara* or early aging. Some other causes found regarding *Kalaja Jara* are *Kala* (time factor),^[7] *Swabhava* (nature),^[8] and *Karma Swabhava*.^[4]

The above-mentioned causative factors can be observed day-to-day life. On the other side, natural process of aging has also become fast due to the changes in environment, food cultivation with chemical fertilizers, pesticides, and because of food processed through modern technology. Consumption of this type of food and toxin accumulation in the body causes premature aging. Another most important cause is psychological stress. Hence, the aging changes appear earlier than they have to in individuals, who are prone to the stressors.^[9]

Panchagavya contains five elements, those are derived from cow, viz. milk, curd, ghee, urine, and cow dung.^[10] A number of useful formulations have been mentioned in Ayurvedic classics with *Panchagavya* as a component. Besides providing health and nutrition to the body, *Panchagavya* cures diseases too with its various properties. Among these properties, *Santarpana* – *Apatarpanakaraka* property is being considered as an important one.^[11]

Ayurvedic principles of treatment as well as origin of diseases are based on *Santarpana* or *Apatarpana* only.^[12] In the context of treatment, it is clearly mentioned that *Santarpanothha Roga* should be treated by means of *Apatarpana Chikitsa* and vice versa. Many drugs or formulations are mentioned in the classics regarding the treatment of an individual *Santarpanothha Roga* or *Apatarpanothha Roga*. But very few formulations are

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having both the effects together. *Panchagavya* has both types of properties together, i.e. milk, curd, and ghee are having *Santarpanakara* property and *Gomaya* (cow dung) and *Gomootra* (urine) having *Apatarpanakara* property.

Considering these qualities, the present study is planned with an objective to evaluate the efficacy of *Panchgavya Ghrita* and *Go Ghrita* on *Jara* and on *Dhatus*.

Materials and Methods

Criteria for selection

Patients of the age group of 40-70 with specific signs and symptoms of *Jara*, either *Medha Hani* (deterioration of intellect), *Twak Hani* (deterioration of skin), and/or *Drishti Hani* (deterioration of vision) were selected from the OPD of Dept. of Basic principles, I.P.G.T. and R.A., irrespective to their sex, caste, religion, etc.

Exclusion criteria

1. Patients having any remarkable or major disease like hyperthyroidism, and other organic pathology, etc.
2. Patients having metabolic diseases like diabetes, hypertension, etc.
3. Persons in whom *Ghrita* is contraindicated.
4. Age <40 and >70 years.

Investigations

1. Routine hematological tests, i.e., Hb%, Total Count (TC), Differential Count (DC), Erythrocyte Sedimentation Rate (ESR), Packed Cell Volume (PCV), RBC count.
2. Urine and stool investigation.
3. Lipid profile – serum cholesterol, serum triglyceride, High Density Lipoprotein (HDL), Low Density Lipoprotein (LDL), Very Low Density Lipoprotein (VLDL).
4. Renal Function Test (RFT) – serum creatinine, blood urea, uric acid.
5. Liver Function Test (LFT) – serum bilirubin (total), serum bilirubin (direct), Serum Glutamic Pyruvic Transaminase (SGPT), Serum Glutamic Oxaloacetic Transaminase (SGOT), serum alkaline phosphatase
6. Fat monitoring, Body Mass Index (BMI) were done.
7. ECG and other necessary investigations were used for exclusion criteria as required.

Drug selection and posology

Panchagavya Ghrita was prepared in the Dept. of Rasa Shastra and Bhaishajya Kalpana by following the classical method of *Ghrita* preparation. This drug was administered to the patients of Group A. Patients of Group B received plain *Go Ghrita*. Dose of drug was 10 g/day early in the morning on empty stomach along with lukewarm water. Total duration of therapy was 90 days.

Chitrakadi Vati was given for *Deepana-Pachana* in a dose of 2 tab. twice a day for 7 days to all the patients.

Criteria for assessment

Medha Hani

Assessed with the help of Post Graduate Institute (PGI) memory scale and special scoring pattern, Hamilton Anxiety Rating scale, and Hamilton Depression Rating Scale.

Twak Hani

Special scoring pattern was developed to estimate the symptoms of *Twak Hani*.

Drishti Hani

It was assessed by retinoscopy, visual acuity, auto-refractometry, funduscopy, and color vision. The examination was done in the OPD of Shalakya Department.

Associated complaints of *Jara* like *Utshah Hani*, *Valita*, *Kasa*, and *Shwasa* were assessed with the help of specially prepared scoring pattern.

Assessment of overall effect of the therapy and statistical analysis

At the end, the data were statistically analyzed through paired and unpaired 't' test.

Total effect of treatment was assessed in terms of cured, marked improvement, moderate improvement, mild improvement, and no changes.

Observations and Results

Total 25 patients (13 in Group A and 12 in Group B) were registered in the trail and 17 completed (7 in Group A and 10 in Group B) the treatment. Age wise distribution shows that 64% of patients were between 40-50 years, 28% were 51-60, and 8% were in 61-70 years of age group. Maximum patients (80%) were following *Samashana* while 20% *Vishamasana*. Majority of the patients were having *Nirama* and satisfactory *Mala Pravritti* (64%), whereas *Sama* and unsatisfactory *Mala Pravritti* were found in 36% of patients. Minimum number of patients were taking *Go Ghrita* (16%) and consumption of cotton seed oil was reported by 76% of patients. Maximum number of patients were having *Madhyama Abhyavaharana Shakti* (80%) and *Madhyama Jarana Shakti* (68%).

Effect of therapy on chief complaints

In Group A, highly significant results were obtained in *Grahana Shakti Hani* ($P \leq 0.001$) and *Twak Hani* ($P \leq 0.001$), while significant result was found in *Smarana Shakti Hani* ($P = 0.004$).

In Group B, highly significant result was obtained in *Grahana Shakti Hani*, *Dharana Shakti Hani*, and *Smarana Shakti Hani* ($P \leq 0.001$) [Tables 1 and 2]. On comparison, all the symptoms showed good results in Group B. Maximum relief was found in *Twak Hani* (100%) in both groups.

Effect of therapy on associated complaints

In Group B, highly significant result was obtained in *Kasa* ($P \leq 0.001$), while significant results were obtained in *Utshah Hani* ($P = 0.004$) and *Valita* ($P = 0.006$). Percentage wise relief was found maximum in *Kasa* (100%) in both groups, while it was same in *Shwas* in Group B [Tables 3 and 4].

Effect on biochemical parameters

In Group A, S. high density lipoprotein (HDL) ($P = 0.010$) was increased significantly, whereas S. creatinine ($P = 0.038$) and uric acid ($P = 0.041$) were decreased significantly. In lipid profile, S. triglyceride ($P = 0.186$) was found to be decreased though it was insignificant. The increase of LDL and decrease of VLDL were insignificant in this group. While no significant

increase was found in LDL, VLDL value decreased, but was not significant. No significant increase or decrease in Group B [Tables 5 and 6].

Comparison of effect of therapy on chief complaints

Comparing both groups, in Group B all the symptoms showed good results in group B. On comparison in between both the groups, none of the symptoms have significant difference. Maximum relief was found in *Twak Hani* (100%) in both groups [Table 7].

Overall effect of therapy

Complete remission was found in 14.28% of patients in Group A; marked improvement was observed in 28.57% of patients

in Group A and 50% of patients in Group B; moderate improvement was found in 28.58% of patients in Group A and 50% of patients in Group B; mild improvement as well as no change was found in 14.28% of patients in Group A [Table 8].

Discussion

Jara is one of the inevitable stages of human life and can be experienced by everybody. Many research projects are going on to find out the remedy for early aging. Ayurveda is a science which is having vast collection of observational and experimental data on *Jara*.

In this study, to analyze the *Jara Avastha* and the effect of drug on it, *Medha Hani*, *Twak Hani*, and *Drishhti Hani* were taken as

Table 1: Effect on chief complaints in seven patients of Group A

Chief complaints	Mean score			N	% Relief	SD	SE	t	P
	BT	AT	Diff.						
<i>Grahana Hani</i>	1.833	0.667	1.167	6	63.66↑	0.408	0.167	7.000	<0.001
<i>Dharana Hani</i>	2.286	1.143	1.143	7	50.06↑	0.900	0.340	3.361	0.015
<i>Smarana Hani</i>	1.857	0.857	1.000	7	53.85↑	0.577	0.218	4.583	0.004
<i>Vachana Hani</i>	1.333	0.833	0.500	6	37.51↑	0.548	0.224	2.236	0.076
<i>Vigyana Hani</i>	1.667	0.833	0.833	6	49.97↑	0.753	0.307	2.712	0.042
<i>Twak Hani</i>	1.000	0.000	1.000	4	100	0.000	0.000	+inf	<0.001
<i>Drishhti Hani</i>	1.571	1.286	0.286	7	18.20↑	0.488	0.184	1.549	0.172

↑: Increase

Table 2: Effect on chief complaints in 10 patients of Group B

Chief complaints	Mean score			n	% Relief	SD	SE	t	P
	BT	AT	Diff.						
<i>Grahana Hani</i>	1.300	0.1000	1.200	10	92.31↑	0.422	0.133	9.000	≤0.001
<i>Dharana Hani</i>	1.300	0.1000	1.200	10	92.31↑	0.422	0.133	9.000	≤0.001
<i>Smarana Hani</i>	1.500	0.300	1.200	10	80.00↑	0.632	0.200	6.000	≤0.001
<i>Vachana Hani</i>	1.000	0.167	0.833	6	83.30↑	0.408	0.167	5.000	0.004
<i>Vigyana Hani</i>	1.600	0.600	1.000	5	62.50↑	0.707	0.316	3.162	0.034
<i>Twak Hani</i>	1.333	0.000	1.333	6	100.0↑	0.516	0.211	6.325	0.001
<i>Drishhti Hani</i>	1.000	1.000	0.000	10	00.00	0.000	0.000	0.000	1.000

↑: Increase

Table 3: Effect on associated complaints in seven patients of Group A

Associated complaints	Mean score			n	% Relief	SD	SE	t	P
	BT	AT	Diff.						
<i>Utsaha Hani</i>	2.000	0.750	1.250	4	62.50↑	0.957	0.479	2.611	0.080
<i>Valita</i>	1.200	0.400	0.800	5	66.67↓	0.447	0.200	4.000	0.016
<i>Kasa</i>	1	0	1	1	100↓	-	-	-	-

↑: Increase, ↓: Decrease

Table 4: Effect on associated complaints in 10 patients of Group B

Associated complaints	Mean score			n	% Relief	SD	SE	t	P
	BT	AT	Diff.						
<i>Utsaha Hani</i>	1.833	0.167	1.667	6	90.94↑	0.816	0.333	5.000	0.004
<i>Valita</i>	1.375	0.500	0.875	8	63.63↓	0.641	0.227	3.862	0.006
<i>Shvasa</i>	1	0	1	1	100↓	-	-	-	-
<i>Kasa</i>	1.000	0.000	1.000	2	100↓	0.000	0.000	+inf	≤0.001

↑: Increase, ↓: Decrease

Table 5: Effect on liver function tests and renal function tests in Group A (n=7)

	Mean score			% Relief	SD	SE	t	P
	BT	AT	Diff.					
S. creatinine	0.957	0.857	0.1000	10.45↓	0.1000	0.0378	2.646	0.038
Blood urea	23.000	21.571	1.429	6.21↓	5.653	2.136	0.669	0.529
Uric acid	4.800	4.400	0.400	8.33↓	0.358	0.146	2.739	0.041
S. albumin	3.900	3.943	-0.0429	1.10↑	0.257	0.0972	-0.441	0.675
S. globulin	3.233	3.214	0.0167	0.52↓	0.133	0.0543	0.307	0.771
Alkaline phosphatase	49.667	55.833	-6.167	12.42↓	17.532	7.157	-0.862	0.428
SGPT	14.833	17.333	-2.500	16.85↑	4.037	1.648	-1.517	0.190
SGOT	23.333	20.500	2.833	12.14↓	4.309	1.759	1.611	0.168
HDL	39.286	50.143	-10.857	27.64↑	7.798	2.947	-3.684	0.010
LDL	117.767	120.867	-3.100	2.63↑	18.012	7.353	-0.422	0.691
VLDL	26.233	25.486	3.433	13.09↓	8.058	3.290	1.044	0.344
S. cholesterol	190.571	205.857	-15.286	8.02↑	18.382	6.948	-2.200	0.070
S. triglyceride	149.429	127.429	22.000	14.72↓	38.940	14.718	1.495	0.186
Bilirubin (T)	0.917	0.900	0.0167	1.82↓	0.426	0.174	0.0958	0.927
Bilirubin (D)	0.367	0.417	-0.0500	13.62↑	0.339	0.138	-0.361	0.733

SGPT: Serum Glutamic Pyruvic Transaminase, SGOT: Serum Glutamic Oxaloacetic Transaminase, HDL: High Density Lipoprotein, LDL: Low Density Lipoprotein, VLDL: Very Low Density Lipoprotein, ↑: Increase, ↓: Decrease

Table 6: Effect on liver function tests and renal function tests in Group B (n=10)

	Mean score			% Relief	SD	SE	t	P
	BT	AT	Diff.					
S. creatinine	1.200	1.190	0.01000	0.833333	0.173	0.0547	0.183	0.859
Blood urea	32.300	29.700	2.600	8.049536	9.743	3.081	0.844	0.421
Uric acid	4.640	4.820	-0.180	3.87931↑	0.828	0.262	-0.687	0.509
S. albumin	3.800	3.910	-0.110	2.89474↑	0.273	0.0862	-1.276	0.234
S. globulin	3.240	3.300	-0.0600	1.85185↑	0.369	0.117	-0.514	0.619
Alkaline phosphatase	66.100	71.100	-5.000	7.5643↑	25.342	8.014	-0.624	0.548
SGPT	13.400	12.000	1.400	10.44776	6.077	1.922	0.728	0.485
SGOT	21.400	24.000	-2.600	12.1495↑	7.090	2.242	-1.160	0.276
HDL	51.900	55.500	-3.600	6.93642↑	15.579	4.927	-0.731	0.484
LDL	91.733	104.067	-12.333	13.4445↑	13.155	7.595	-1.624	0.246
VLDL	14.267	17.933	-3.667	25.7027↑	7.047	4.068	-0.901	0.463
S. cholesterol	181.600	184.100	-2.500	1.37665↑	28.368	8.971	-0.279	0.787
S. triglyceride	81.200	111.500	-30.30	37.3153↑	78.334	24.771	-1.223	0.252
Bilirubin (T)	0.930	0.910	0.0200	2.150538	0.262	0.0827	0.242	0.814
Bilirubin (D)	0.330	0.360	-0.0300	9.09091↑	0.149	0.0473	-0.635	0.541

SGPT: Serum Glutamic Pyruvic Transaminase, SGOT: Serum Glutamic Oxaloacetic Transaminase, HDL: High Density Lipoprotein, LDL: Low Density Lipoprotein, VLDL: Very Low Density Lipoprotein, ↑: Increase

parameters and *Panchagavya Ghrita* and plain *Go Ghrita* were used in the treatment.

Many formulations have been explained in *Samhitas* to slower down the aging process as well as to lead a comfortable life in the old age. *Ghrita* is the best one among all the *Snehadravya*,^[13] and maximum number of *Ghrita* preparations are explained in *Rasayana Chikitsa*. *Panchagavya Ghrita* is one of the formulations having both *Apatarpanakaraka* and *Santarpanakaraka Dravyas* together, so that both kinds of properties can be obtained through it, which is essential in the management of *Jara*.

Rasayana Chikitsa will be effective either in *Purva Vayah* or in *Madhaya Vayah*.^[14] General observations shows that maximum

number of patients are between 40 and 50 years of age. As it is a working group, treatment is essential for them.

On *Medha*, the effect of *Panchagavya Ghrita* shows highly significant relief, in *Grahana Shakti Hani* in Group A, while improvement in *Grahana Shakti Hani*, *Dharana Shakti Hani*, and *Smarana Shakti Hani* was also highly significant in Group B ($P \leq 0.001$). It is clearly indicated in the literature of Ayurveda that *Go Ghrita* has the property to increase *Dhi*, *Dhriti*, and *Smriti*.^[15]

Analytical study shows that *Panchagavya Ghrita* has more *Vitamin A* than plain *Go Ghrita*.^[16] It is indicated that *Chakshushya* effect is obtained with *Panchagavya Ghrita*.^[17] Observations are also in favor of this analysis that 18.20% [Table 1] patients got relief in *Drishti Hani* on subjective parameters.

Table 7: Comparison of effect of therapy on chief complaints

Chief complaints	df	% Relief		t	P
		Group A	Group B		
Grahana Hani	14	63.66	92.31	-0.155	0.879
Dharana Hani	15	50.06	92.31	0.177	0.862
Smarana Hani	16	53.85	80.00	-0.249	0.807
Vachana Hani	10	37.51	83.30	-1.195	0.260
Vigyana Hani	10	49.97	62.50	0.000	1.000
Twak Hani	8	100	100	-1.265	0.242
Drishsti Hani	15	18.20	0	1.879	0.080

Table 8: Overall effect of therapy

Overall effect	Group A		Group B	
	No. of pts	Percentage	No. of pts	Percentage
Complete remission	01	14.28	00	00
Marked improvement	02	28.57	05	50
Moderate improvement	02	28.58	05	50
Improvement	01	14.28	00	00
Unchanged	01	14.29	00	00

Biochemical parameters show that HDL was increased significantly, while blood urea and serum creatinine were decreased in Group A. It indicates that though *Gomootra* is a content of *Panchagavya Ghrita*, it shows significant decrease in blood urea.

Both the groups A and B showed highly significant and significant results, respectively, regarding chief complaints.

Conclusion

It is said that *Jara* is an irreversible condition that can only be stabilized or prevented and not to be cured. In the management of *Jara*, *Rasayana Chikitsa* is indicated and different types of *Ghrita* are widely used. So, it is clear that *Ghrita* is the drug of choice for *Jara* as *Snehaansa*, that is decreased during this stage. *Jara* appears because of many causes, either *Santarpanakaraka* or *Apatarpanakaraka*. *Panchagavya Ghrita* is having both the properties. Also, it is indicated in *Shareerika* and *Manasika Vyadhi*. Hence, its effects were found on both physical and psychological factors. Both the groups provided better results on the chief complaints *Medha Hani*, *Twak Hani*, and *Drishsti Hani*.

But, comparison in between both the groups is insignificant.

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हिन्दी सारांश

जरा अवस्था का समालोचनात्मक अध्ययन एवं पंचगव्य द्वारा उसका उपाय

निशा वी. परमार, हितेश व्यास, महेश व्यास

इस शोध कार्य में जरा पर पंचगव्य के प्रभाव को जानने हेतु तीन परिमाण मेधा हानि, त्वक हानि और दृष्टि हानि चुने गये। शोध कार्यार्थ पंजीकृत २५ रूग्णों को जरा के उपरोक्त तीन लक्षणों को ध्यान में रखते हुए यादृच्छिक विभाजन पद्धति द्वारा दो वर्गों में विभाजित किया गया। पहले वर्ग में कुल १३ और दूसरे वर्ग में १० रूग्णों का पंजीकरण हुआ, जिसमें से अनुक्रम से ७ और १० रूग्णों ने अंत तक चिकित्सा ली और अन्य ०८ रूग्णों ने कोई कारण दर्शाये बिना बीच में ही चिकित्सा छोड़ दी। इन रूग्णों में मेधा हानि, त्वक हानि और दृष्टि हानि की स्थिति का मूल्यांकन शास्त्रोक्त लक्षणों एवं प्रात्याक्षिक मूल्यांकन के आधार पर किया गया। प्रथम वर्ग के रूग्णों को पंचगव्य घृत प्रतिदिन १० ग्राम प्रातः निरान्नकाल में कोष्ण जल के साथ दिया गया एवं द्वितीय वर्ग के रूग्णों को केवल गोघृत उसी मात्रा में दिया गया। चिकित्सा के अंत में सांख्यिकीय दृष्टि से औषध के प्रभाव से मेधा हानि, त्वक हानि और दृष्टि हानि में हुए परिवर्तन को जाना गया और यह पाया गया कि प्रथम वर्ग और दूसरे वर्ग के रूग्णों को महत्तम लाभ प्राप्त हुआ।