INTERNATIONAL RESEARCH JOURNAL OF PHARMACY
www.irjponline.com
ISSN 2230 – 8407

Research Article

DEVELOPMENT OF AN OBJECTIVE PARAMETER FOR AGNI PARIKSHANA WITH REFERENCE TO JARANAKALA OF UNIT QUANTITY OF LAJAMANDA

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Article Received on: 28/02/19 Approved for publication: 22/03/19

DOI: 10.7897/2230-8407.1003112

ABSTRACT

Introduction - Agni (digestive fire) is the basic principle of life and it is deliberated by Jaranashakti (digestive capacity). Jaranashakti is assessed in terms of time required for Jirnahara Lakshana (symptoms of digestion) from Aharasevana (food intake). These Lakshana are subjective. So, an attempt was made to develop an objective parameter for Agni Parikshana. Our body weight is virtually constant. Apparent increase in weight after Annasevana (food intake) and restoring weight after its Pachana (Mala-Mutra Visarjana) (urination and defecation) is the basic theme behind this study. Laghuta (feeling of lightness) with reference to weight was taken into consideration as an objective parameter. Material and method - The study was carried out in 100 apparently healthy individuals, nil by mouth overnight, pre-urinated and defecated. They were weighed and subjected to Lajamanda Sevana (consumption of aqueous decoction of puffed rice) of a unit quantity (250 ml). Their weights were noted again. Apparent increase in weight of average 250 grams was seen. Assessment of weight and Mutravega Nirmiti (urge of passing urine) were done till the weight before Lajamanda Sevana was restored. Time interval was calculated. The time required for restoring weight and time interval between Lajamandasevana and Mutraveganirmiti were compared. Result - The Pearson's correlation test was significant (0.000) for weight restoring time and time interval between Lajamanda sevana and Mutravega nirmiti. The time required for weight restore is 1.161 times more than time interval between Lajamandasevana and Mutraveganirmiti. Conclusion - Laghuta in terms of weight can be considered as an objective parameter for Agni Pariksha.

Keywords: Agni Pariksha, Jirnahara Lakshana, Laghuta, weight

INTRODUCTION

Agni or Jatharagni (digestive fire) is one of the basic principles of Ayurveda. It has major role in Anna Pachana Kriya (digestion of food)[1], so is pivotal in Sharira Kriya (physiology). Agni plays a role of pillars in health construction of the body. All factors of body are dependent upon Jatharagni. If Agni becomes Shanta i.e. inactive, then person dies. If Agni becomes vitiated, then it leads to various diseases. If Agni is in equilibrium, then person lives long healthy life[2].

Our body weight is virtually constant. The weight of the body is apparently increased by Annasevana (food intake). It is restored after Annapachana and Mala-Mutra Visarjana (passage of stool and urine). Thus, weight of body is maintained. Apparent increase in weight after Annasevana and restoring weight after its Pachana (Mala-Mutra Visarjana) is the basic theme behind this study.

Jatharagni

There are four types of Jatharagni depending upon its strength and capacity to tolerate Apachara (unwholesome or improper regimen) viz. Tikshnagni, Mandagni, Samagni and Vishamagni[3]. Jaranakala means time required for digestion of food. It is the from food intake to excretion of waste product.

Jaranakala of Ahara - Jarnakala of Samagni for food is four Yama (1 Yama ≈ 3 hours) i.e. 12 hours[4]. Tikshnagni requires less than 4 Yama, Mandagni requires more than 4 Yama. Nature of Samagni is uncertain. Sometimes it's like Samagni and sometimes it's like Mandagni.

Jaranakala of Bheshaja (medicine) - Jarnakala of Samagni for medicine is two Yama (1 Yama ≈ 3 hours) i.e. 12 hours[4]. Tikshnagni requires less than 2 Yama, Mandagni requires more than 2 Yama. Nature of Samagni is uncertain. Sometimes it's like Samagni and sometimes it's like Mandagni.

Four types of Jathargni can be summarized as follows -

Table 1: Types of jatharagni

Type of Jatharagni	Tikshnagni	Mandagni	Samagni	Vishamagni
Apachara-Sahatva (misconduct)	Can tolerate	Cannot tolerate	Cannot tolerate	Sometimes Can tolerate
Time required for digestion of food	< 4 Yama	> 4 Yama	4 Yama	Uncertain
Time required for digestion of medicine	< 2 Yama	> 2 Yama	2 Yama	Uncertain
Relation with Dosha	Pitta	Kapha	Sama Dosha	Vata
As cause of disease	No (up to certain extent)	Yes	No	Yes

Assessment of Agni is done by Jaranashakti[5]. Jaranashakti means capacity of digestion. As digestion progresses, certain signs are reflected which denote the phase of digestion. These signs are called as Jirnahara Lakshana[6]. Jirnahara Lakshana tells about completion of digestion, like the end stage of digestion is formation and excretion of waste product. Also, any variation in Jirnahara Lakshana gives idea about abnormality.

Jirnahara Lakshana[6]

- **Udgarashuddhi** (clear belching) - Vayu is responsible for any kind of movement in body. Likewise, as ingested food moves from Amashaya (stomach) to Pachyamanashaya (small intestine), the cavity inside that is occupied by food, resulting into displacement of Vayu (gas) which was positioned in Pachyamanashaya. So, the displaced Vayu tries to move through nearest way from Pachyamanashaya, i.e. mouth in terms of belching. As food has undergone first stage of Avasthapaka (stage of digestion) in Amashaya, the displaced Vayu does not have any smell of ingested food. That's why it is called as Udgarashuddhi.
- **Laghuta** (lightness) - Laghuta or feeling of lightness can be interpreted in terms of weight.
- **Kshut** (hunger) - Kshut is symbol of gastric emptying time. As food moves from Amashaya to Pachyamanashaya, stomach becomes empty. So, hunger is felt during or at the end of Second Avasthapaka (stage of digestion). It can be correlated with gastric emptying time.
- **Pipasa** (thirst) - Thirst is felt when Ushna and Tikshna Guna (hot, sharp or acidic attributes) are functioning at their crest during the process of digestion. At that time body demands for Sheeta, Mrudu and Snigdha Guna to compensate in terms of Jala which is reflected as Trushna or Pipasa. So, thirst is there during or at the end of Second Avasthapaka.
- **Vegotsarga** (excretion) - Vegotsarga is indication of completion of digestion. Adhovata (flatulence), Mutra (urine), Purisha (feces) are considered as Aharamala[7] (waste products of food). Mala are going to form at the end of digestion. Adhovata i.e. Aharamala Svarupa Vayu is formed at third stage of Avasthapaka[8]. Its elimination is the function of Apana Vata.
  According to Ayurveda, Mutra Nirmana takes place in Pakwashaya[9]. When Ahara comes to Pakwashaya during third stage of Avasthapaka, separation of Mala part is done in two forms Drava Mala and Ghana Mala. Drava Mala is turned into Mutra and is excreted by Apana Vata[10]. Ghana Mala is converted into Purisha and is excreted out of body by Apana Vata[11].
- **Utsaha** (enthusiasm) - Enthusiasm is quite subjective sensation. When digestion completes, formed Mala are going to be excreted from body. After excretion, person feels lightness, energetic which is termed as Utsaha.

Need for the study

These Jirnahara Lakshanani are subjective. So here is an attempt to develop an objective parameter for Agni Parikshana which should have following features -

- According to Principles mentioned in Ayurvedic Samhita
- Easy to carry out
- Less time consuming
- Can be applied to healthy as well as diseased persons.

Research question

Is there any relation between time required for Mutravega Nirmana and time required to restore initial weight with reference to unit quantity of Lajamanda.

Null hypothesis

There is no relation between time required for Mutravega Nirmana and time required to restore initial weight with reference to unit quantity of Lajamanda.

Alternate hypothesis

There is relation between time required for Mutravega Nirmana and time required to restore initial weight with reference to unit quantity of Lajamanda.

AIM AND OBJECTIVE

To develop an objective parameter for Agni Parikshana with reference to Jaranakala of unit quantity of Lajamanda.

MATERIALS AND METHODS

Place of work: Sri Dharmasthala Manjunatheshwara College of Ayurveda & Hospital, Hassan

Sample size: 100

Time of the study: Hemanta and Shishira Rutu (November to February)

Inclusion criteria

- Apparently healthy individuals
- Age-18 to 23 years
- Gender- either

Exclusion criteria

- Diseased persons
- Atisthula (obese), Atikrusha (lean)

Steps in study

- Approval from Institutional Ethical committee was taken. (RGUHS / R&D / research / grants / A06 / 2012-13 dated 03-04-2013)
- Apparently healthy volunteers were selected.
- Informed written consent was taken.
- Apparently healthy volunteers (nil by mouth overnight, pre-urinated and defecated) were weighed and subjected to Lajamanda Sevana of a unit quantity (250 ml). Their weight was noted again.
- Assessment of weight and Mutravega Nirmana were done till the weight before Lajamanda Sevana was restored.
- Time interval was calculated.

OBSERVATIONS AND RESULT

Difference in weight before and after Lajamanda Sevana (in grams)

Table 2: Difference in weight before and after lajamanda sevana (in grams)

Mean	250
Median	250
Mode	250
Standard deviation	0.3675
Minimum	150
Maximum	350

Table 3: Difference in weight before and after lajamanda sevana (in grams)

Difference in weight (in grams)	No. of volunteers
150	1
200	20
240	1
250	58
300	16
310	1
350	3

Out of 100 volunteers, 1 volunteer showed 150 grams difference, 20 volunteers showed 200 grams difference, 1 volunteer showed 240 grams difference, 58 volunteers showed 250 grams difference, 16 volunteers showed 300 grams difference, 1 volunteer showed 310 grams difference and 3 volunteers showed 350 grams difference.

Time required for restoring weight in minutes

Table 4: Time required for restoring weight in minutes

Mean	92.51
Median	80
Mode	60
Standard deviation	41.62
Minimum	38
Maximum	210

Time required for restoring the weight

Table 5: Time required for restoring the weight

Time required for restoring the weight	No. of volunteers	Percentage
From 0 to 30 minutes	00	00
From 31 to 60 minutes	27	27
From 61 to 90 minutes	36	36
From 91 to 120 minutes	21	21
From 121 to 150 minutes	3	3
From 151 to 180 minutes	9	9
From 181 to 210 minutes	4	4

Out of 100 volunteers, 27 volunteers restored weight in 31 to 60 minutes, 36 volunteers restored weight in 61 to 90 minutes, 21 volunteers restored weight in 91 to 120 minutes, 3 volunteers restored weight in 121 to 150 minutes, 9 volunteers restored weight in 151 to 180 minutes, 4 volunteers restored weight in 181 to 210 minutes.

Time required for Mutravega in minutes

Table 6: Time required for mutravega in minutes

Mean	81.84
Median	74
Mode	60
Standard deviation	32.74
Minimum	38
Maximum	190

Time interval between Lajamanda Sevana and Mutravega

Table 7: Time interval between lajamanda sevana and mutravega

Time interval between Lajamanda Sevana and Mutravega	No. of volunteers	Percentage
From 0 to 30 minutes	00	00
From 31 to 60 minutes	32	32
From 61 to 90 minutes	41	41
From 91 to 120 minutes	16	16
From 121 to 150 minutes	5	5
From 151 to 180 minutes	5	5
From 181 to 210 minutes	1	1

Out of 100 volunteers, 32 had Mutravega in 31 to 60 minutes, 32 had Mutravega in 31 to 60 minutes, 41 had Mutravega in 61 to 90 minutes, 16 had Mutravega in 91 to 120 minutes, 5 had Mutravega in 121 to 150 minutes, 5 had Mutravega in 151 to 180 minutes, 1 had Mutravega in 181 to 250 minutes.

Difference between two times

Table 8: Difference between two times

Difference between two times	No. of volunteers
no difference	71
difference between 1-30 minutes	17
difference between 31-60 minutes	6
difference between 61-90 minutes	3
difference between 91-120 minutes	1
difference between 121-150 minutes	2

Out of 100 volunteers, 71 showed no difference between time for restoring weight and time for Mutravega. 17 volunteers showed difference between 1 to 30 minutes, 6 volunteers showed difference between 31 to 60 minutes, 3 volunteers showed difference between 61 to 90 minutes, 1 volunteer showed difference between 91 to 120 minutes, 2 volunteers showed difference between 121 to 150 minutes.

Correlation between time for restoring weight and time for Mutravega

Table 9: Correlation between time for restoring weight and time for mutravega

		Time for restoring weight	Time for Mutravega
Time for restoring weight	Pearson correlation	1	.766
	Sig. (2-tailed)		0.000
	N	100	100
Time for Mutravega	Pearson correlation	.766	1
	Sig. (2-tailed)	0.000	
	N	100	100

Correlation is significant at 0.01 (2-tailed)

There is relation between time for restoring weight and time required for Mutravega as Pearson correlation test is significant (0.000).
Therefore, alternative hypothesis is accepted.

Ratio statistics for time for restoring weight / time for Mutravega

Table 10: Ratio statistics for time for restoring weight / time for mutravega

Mean	1.161
Median	1.000
Weighted mean	1.130

The ratio of mean of time for restoring weight and time required for Mutravega is 1.161. This indicates that the time required for restoring weight is 1.161 times more than that of time required for Mutravega.

DISCUSSION

Apparent increase in weight after consumption of Lajamanda - The average increase in weight was seen as 250 grams (after drinking of 250 ml Lajamanda). The variation in apparent increase in weight may be due to variation in evacuation of Vata from Mahasrotas (GIT). After consuming something, the cavity gets occupied and Vayu gets released in terms of Udgara (belching). The time interval between consumption and Udgara varies from person to person. Also, Vayu occupied in cavity has some weight. Therefore, apparent increase in weight varies.

Correlation between time for restoring weight and time for Mutravega - There is relation between time required for restoring weight and time required for Mutravega after Lajamanda Sevana. The Pearson's correlation test is significant (0.000) for weight restoring time and time interval between Lajamandasevana and Mutraveganirmiti. This shows that weight restoring time and time interval between Lajamandasevana and Mutraveganirmiti are in proportion. The time required for weight restore is 1.161 times more than time interval between Lajamandasevana and Mutraveganirmiti.

Laghuta as an objective parameter - Mutravega indicates digestion of Lajamanda. There is relation between time required for restoring weight and time required for Mutravega. So, time required for restoring weight can be considered as time required for digestion of Lajamanda. Consequently, weight in terms of Laghuta can be considered. As a result, Laghuta can be considered as an objective parameter for assessment of Agni in terms of weight.

CONCLUSION

Laghuta with reference to weight is proved to be considered as an objective parameter for Agni Parikshana. An objective parameter is developed for Agni Parikshana.

ACKNOWLEDGEMENT

The authors like to acknowledge Rajiv Gandhi University of Health Sciences, Bengaluru for funding and Sri Dharmasthala Manjunatheshwara college of Ayurveda and Hospital, Hassan, Karnataka for support and providing necessary facilities for this study.

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Cite this article as:

Neha Dattatraya Gadgil *et al*. Development of an objective parameter for agni parikshana with reference to jaranakala of unit quantity of lajamanda. Int. Res. J. Pharm. 2019;10(3):242-245
http://dx.doi.org/10.7897/2230-8407.1003112

Source of support: Nil, Conflict of interest: None Declared