



Research Article

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OPEN LABEL SINGLE ARM EXPERIMENTAL STUDY TO STANDARDIZE DOSE OF MILK IN ASSESSMENT OF KOSHITA

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ABSTRACT

The research was mainly aimed at standardizing the dose of milk needed for the assessment of Koshta in healthy volunteers. Healthy volunteers were screened for their health status using SF12 questionnaire; thereafter assessment of koshta was done using the published questionnaire. 19 volunteers of Mrudu, 81 of Madyama and 4 of Krurakoshta were selected. Individuals were asked to have dinner the previous night of the study. Next day, in empty stomach, after passing the bowel, the individuals were given milk and this was calculated based on the trividhakushadihyaya of Charaka Samhita, 500 ml of milk was administered first and the results were assessed using assessment criteria, if no loose stools were observed, then the procedure was repeated with the gap of 7 days by increasing the quantity of milk by 100 ml each time. The final outcome was observed and the assessment was stopped once virechana was achieved or the maximum permissible limit of milk was reached (1000 ml). The quantity of milk and the results were then tabulated and attempt to standardise the dose required for assessment of the koshta was done. The Dose of milk needed to cause purgation in mrudukoshta was 500-600 ml, for that of madyama was 600 to 700 ml for madyama Tara was 700-800 ml madyamatama was 800 to 900 ml, the dose of milk needed to cause purgation in krura could not be elicited and this was supported by the statement made by acharya sushruta that krurakoshta individuals do not purgate with milk.

Keywords: Koshta, Vegas, Virechana, Milk, Ksheera

INTRODUCTION

In Ayurveda the dose, duration and type of medicine for Panchakarma (detoxification therapy) especially for Vamana (Emesis) and Virecana (Purgation) Koshta (nature of digestive tract) assessment is considered as a prerequisite. The doshas (foundational concepts of the body) Vata (air) Pitta (fire) and Kapha (fluid) have their qualities and actions predominant in Krura (hard) Mrudu (soft) and Madyama (moderate) Koshta (nature of digestive tract) respectively. The equilibrium of all the three Doshas (foundational concepts of the body) are observed in Sama [balanced] Koshta (nature of the digestive tract).¹ In the Koshta (digestive tract) if Shleshma Dosha (fluid constituent) is excess then it leads to proper Vamana (emesis) and if it is less then leads to Virecana (purgation). Also If in Madhyama Koshta (moderate nature of the digestive tract) Shleshma (fluid component) is more Virecana (purgation) does not occur sufficiently.² Madhyama Shodana dravya (moderately detoxifying drug) if administered to the Krura Koshta (hard natured digestive tract) leads Hina Yoga (reduction in outcome) in Mrudu Koshta (soft natured digestive tract) it leads to Ati Yoga (excessive outcome) and in Madhyama Koshta (moderate nature of the digestive tract) it leads to Samyak Yoga (sufficient outcome). In Samshodana (detoxification) the Samyak (sufficient), Ati (excess) and Hina yoga (reduced outcome) depends on preparation of the body through Snehana (oleation)

and Swedana (fomentation). The person having Mrudukoshta (soft nature digestive tract) attains symptoms of proper oleation therapy in three days, whereas Krura Koshta (hard nature of digestive tract) attains oleation by seven days.³ In Mrudu Koshta (soft natured digestive tract) if jaggery, sugar cane juice, liquid part of curd, Milk, Curd, Payasa, Krushara, (sweet-kichidi) Ghee, Kashmarya (*Gmelina arborea*) Triphala Rasa (juice of Amalaki-*Emblica officinalis*; Bibitaki - *Terminalia bellirica*; and Haritaki - *Terminalia chebula*.), Draksha Rasa (juice of *Vitis vinifera*), Peelu (*Salvadora persica*) hot water, medicated alcohol are advised it leads to purgation but it won't be so in case of Krura Koshta.⁴

MATERIALS AND METHOD

The research was mainly aimed at analysing and standardizing the dose of milk needed for the assessment of Koshta in healthy volunteers.

The Study was initiated after receiving the Institutional Ethics Committee Clearance [IEC No. SKAMCH and RC/IEC/002/2019] and informed consent from the volunteers; Volunteers were screened for their health status using the standardised SF12 Health assessment questionnaire.

The volunteers aged between 18-25 years, either gender were included, whereas the subjects Non Willing and lactose intolerance were excluded from the study. The assessments Criteria of objective of study were Bristol stool scale, Frequency of Stool and Consistency of Stool.

Healthy volunteers were screened for their health status using SF12 questionnaire, there after assessment of koshta (nature of digestive system) was done using questionnaire. Minimum of 19 volunteers of Mrudu, 81 of Madyama and 4 of Krurakoshta based on the questionnaire were selected. Assessment parameter related to the effect of milk was assessed using the assessment criteria's. In this study nandini blue milk was used for assessing and fixing the dose needed to cause purgation for different Koshtha Volunteers.

METHODOLOGY

The work was initiated by selecting healthy volunteers of age group 18-25 on the basis of SF12 standardized health assessment questionnaire. The healthy volunteers were then grouped into different koshta types based on the questionnaire; the outcome was accounted to be a total of 19 mrudu, 81 madyama and 4 krura total accounting to be a 104 healthy volunteers.

Individuals were then asked to have their dinner the previous night of the study. Next day in empty stomach after passing the bowel the individuals were given milk and this was calculated based on the total volume of stomach being 1500 ml⁵. Taking into account the quantity of fluid that can be permitted for intake while allowing the free movements of other gaseous substances and secretions according to acharya charaka⁶ being one third of the stomach capacity this accounting to be 1500/3 = 500. Hence 500 ml of milk was then administered and the results were assessed using assessment criteria, if no loose stools were observed then the procedure was repeated with the gap of 7 days by increasing the quantity of milk by 100 ml each time.

OBSERVATIONS

Out of 104 subjects, 96 subjects were from the age group of 18-22 years (92.30%), whereas 8 subjects belonged to the age group of 23-25 years (7.69%) 21 were male (20.19%), whereas 83 subjects were female (79.80%), 89 subjects were of Hindu religion (85.57%), 06 subjects belonged to Muslim religion (5.76%) and 09 (8.65%) subjects belonged to Christian religion. 54 subjects were of vatapittaprakruthi (51.9%), 35 subjects were of pitta kaphaprakruthi (33.7%) and 15 subjects belonged to kaphavataprakruthi (14.4%).

Based on questionnaire out of these 104 subjects 19 subjects were mrukukoshta (18.3%), 81 subjects were madyamakoshta (77.9%) 4 subjects were krurakoshta (3.8%). These 104 subjects were analysed for health status using SF12 questionnaire as per which the health of 4 subjects (3.84%) was fair, health of 60 subjects was good (57.69%), health of 34 subjects was very good (32.69%) and health of 6 subjects was excellent (5.7%) of these 104 subjects 18 subjects were dropouts hence the total administration was carried out among 86 subjects.

Of these 86 subjects on administering 500-600 ml 8 had 1 vega, 11 had 2 vegas, 14 had 3 vegas, 4 had 4 vegas subjects who passed stools but did not have the indication as diarrhoea on Bristol stool scale (type 6 or 7) were not counted for the above stated outcome therefore outcome accounts to be a total 37 subjects who had type 6 and 7 stool on Bristol scale [diarrhoea] at this dose (Diagram 1).

On administering a dose of 600-900 ml to individuals 1 had 1 vega, 2 had 2 vegas, 14 had 3 vega, 2 had 6 vegas, 1 had 7 vegas 1 had 10 vegas these do not include individuals who passed stools but were not of type 6 or 7 on the Bristol scale. This accounts to be a total of 21 subjects who had virechana at different doses from 600 to 900 ml.

A dose of 900 and above was administered to the other individuals who had not got the desired outcomes of stools of type 6 and 7 but no effect was seen on such individuals hence this could prove the statement mentioned in sushruta samhita that a krurakoshta person does not purgate with milk⁷.

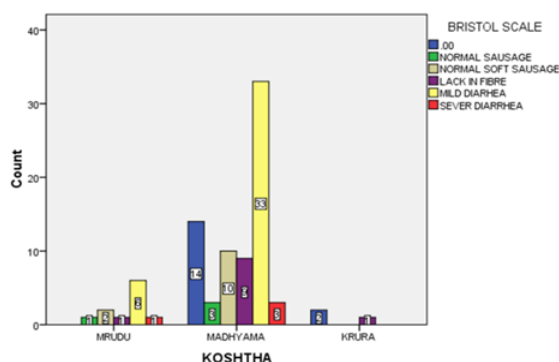


Figure 1

Stool type analysed based on the bristol stool scale after the administration of milk. Out of 86 subjects 1 of mrudu koshta had type 1 normal sausage stool, 2 had normal soft sausage stools, 1 had lack in fibre type of stools, 6 had mild diarrhea, 1 had severe

diarrhea. 3 of krura koshta had normal sausage type, 10 had normal soft sausage type of stools, 9 had lack in fibre type of stools, 33 had mild diarrhea, 3 had severe diarrhea. no krura oshta individual had any stools (Table 1).

Table 1: No of virechana Vega on administration of various dose of milk

Milk dose	Mean	Standard-deviation	Standard error mean	t	df	Significance 2-tailed
Milk 1 st dose No of virechana in first dose	5.3720	48.99078	5.28281	101.690	85	.000
Milk second dose No of virechana in second dose	2.8072	352.01767	37.95904	7.395	85	.000
Milk third dose No of virechana in third dose	3.4697	159.19489	2.021	2.021	85	.046

The dose of milk was found statistically highly significant at the 1stdose [p = 0.000], highly significant at 2nddose of milk with that of vega [p = 0.000] and significant at 3rd milk dose [p = 0.046].

Table 2: Correlation between No. of virechana Vega on administration of various dose of milk

	N	Correlation	sig
Milk 1 st dose with No of virechana in first dose	86	-.041	.705
Milk second dose with No of virechana in second dose	86	.387	.000
Milk third dose with No of virechana in third dose	86	.756	.000

Table 3

Koshtha and Milk	Mean	Standard. Deviation	Standard Error Mean	t	df	Significance 2 tailed
Koshtha - Milk 1st Dose	-5.36465E2	48.84205	5.26677	-101.858	85	.000
Koshtha - Milk 2nd Dose	-2.79488E2	352.64619	38.02682	-7.350	85	.000
Koshtha - Milk 3rd Dose	-3.29767E1	160.00750	17.25405	-1.911	85	.059

The distribution of koshta and vegas was found to be statistically highly significant at 1st dose [p = 0.0000], highly significant at 2nd dose [p = 0.000] and non-significant at 3rd dose [p = 0.059].

DISCUSSION

On analyzing these outcomes we can tell that people who had virechana at a dose of 500-600 ml can be considered as mrukoshtha individuals, subjects having virechana at 600-900 ml can be further classified into Madhyama, Madhyamatara and Madhyamatama based on classification given by acharya sushruta⁸ which can be told as madyama type of koshta individual purgates with a dose of 600 to 700 ml, madyamatara at 700 to 800 ml and madyamatama koshta at 800-900 ml.

Hence we can tell that quantity of nandini blue milk required to cause purgation in mrukoshtha individuals is 500-600 ml, For madyama 600-700 ml, for madyamatara 700-800 ml, for madyamatama 800 to 900 ml and quantity of milk required to cause purgation in krurakoshtha could not be standardized which also holds good as per the reference given in sushruta samhita.⁹

CONCLUSION

Hence the dose of milk needed to cause purgation in mrukoshtha can be standardized as 500-600 ml, for that of madyama as 600 to 700 ml for madyamatara as 700-800 ml madyamatama as 800 to 900 ml. The dose of milk needed to cause purgation in krura could not be elicited and this is supported by the statement made by acharya Sushruta that krurakoshtha individuals do not purgate with milk.

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