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STUDY OF *ASTHI DHATU PUSHTI* W.S.R. TO *DUGDHAHAR*

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ABSTRACT

Diet plays an important role in nourishment of body. *Asthi dhatu pushti* (Nourishment of bone) depends on balanced diet. The present study entitled Study of *Asthi dhatu Pushti* with special reference to *Dugdhahar* primarily aimed at the evaluation of the effect of *Dugdhahar* (*Mahish Dugdha*- buffalo milk) on *Asthi dhatu kshaya* (Osteoporosis) *purush* (Person) for *Asthi dhatu-Pushti*. 60 patients of *Asthi dhatu kshaya* were selected. All the subjects were examined according to criteria of diagnosis and they were included in study randomly. Subjects were examined for each of signs and symptoms like *Kesh prapatan* (Hair loss), *Loma prapatan* (body hair loss), *Nakha prapatan* (Breakage of nail), *Shmashru prapatan* (Hair loss from beard). *Dwija prapatan* (Breakage of teeth), *Shrama, Sandhi-saithilya* (Looseness of joint) was recorded at the time of treatment and Serum Calcium investigation was done as per criteria for assessment. Subjective parameter was graded as 0, 1, 2 and 3. Milk (*Mahish Dugdha*- buffalo milk*)* was given for 21 days duration as 200ml per day in morning. Subjects were allowed to take usual diet. Milk is '*Brumhana'* and '*Sandhankar'*. It nourishes all the seven *dhatus*. For the formation of *Asthidhatu Asthidhatwagni* acts on *Prithvi*, *Agni* and *Vata* predominant portions of nutrients and nourish the *Asthi dhatu*. By statistical analysis of *Kesh prapatan, Loma prapatan, Nakha prapatan, Shmashru prapatan, Dwijja prapatan, Shrama, Sandhi-saithilya* 'p' value was <0.001, and serum calcium level 'p' value was <0.05. Overall improvement was 60.57%.

Keywords: *Asthidhatu*, *Mahish Dugdha*, *Asthidhatwagni*

INTRODUCTION

The greatest culture in world is Indian culture and without *Veda*, our Indian culture is incomplete. According to *Ayurveda* the basic constituents of living body are *Dosha*, *Dhatu* and *Mala*.[1] The normal proportions of these three elements are very necessary for body. The seven types of *dhatus* are *rasa, rakta, mamsa, meda, asthi, majja* and *shukra*.[2] *Asthi dhatu* is *kathin tam* (hardest) *dhatu*. According to *Acharya Charaka*, for the formation of *Asthidhatu Asthidhatwagni* acts on *Prithvi*, *Agni* and *Vata* predominant portions of nutrients.[3] Living body is continuously subjected to wear and tear process. *Dhatus* need constant nourishment. Nourishment of *dhatu* or tissue depends upon the quality of food. Food is converted to body constituents by the process of metabolic activity.

According to '*Samanya-Vishesha Siddhanta'* of *Ayurveda Samanya* substances are the cause for union and *Samanya* is of three types- *dravya samanya* (substance), *guna samanya* (quality), and *karma samanya* (action).[4] Thus to increase *Asthidhatu*, one will have to eat *asthi* (*Tarunasthi*- cartilage)[5] which is less practical, but in

Charaka samhita, while describing the qualities of milk it said that milk is *Brumhana* and *Sandhankar.*[6] It nourishes all the seven *dhatus*. Among 8 types of milk, *Mahish dugdha* (Buffalo milk) is *guru* in *guna*[7] and it has the predominance of *Aap* and *Parthiva mahabhuta* and *Asthi* has also the predominance of *guru guna* and *Prithvi mahabhuta*. So buffalo milk can nourish *asthi* better as compared to cow's milk.

AIMS AND OBJECTIVES

1. To evaluate the effect of *Dugdhahar* (Buffalo milk) on *Asthidhatukshaya Purusha* for the *Asthidhatu Pushti*.
2. To examines the sign and symptoms of *asthidhatukshaya* according to *ayurvedic* and modern aspect.
3. To study the variation occurring in levels of Serum calcium in cases of *asthi dhatu kshaya Purusha*.

MATERIAL AND METHODS

Inclusion Criteria

- Age group- Age between 20 to 30 years.
- Sex- Both male and female.
- Subject ready to abide by trial procedure and to give informed consent.
- Subjects having sign and symptoms of *Asthi dhatu kshaya*.

B) Exclusion Criteria

- Age group- Age below 20 years and above 30 years.
- Pregnant and lactating women.
- Subject having any acute or chronic illness.

Subject Recruitment: Subjects were selected from OPD and IPD of study centre (R. A. Podar Medical (Ayu.) College and Hospital, Worli-Mumbai)

Given *Aahar Dravya*: *Dugdha* (Buffalo milk)

Dose (Quantity) and Duration of given *Aahar Dravya*: 200 ml/day in morning for 21 days.

Number of Subject: Total numbers of subject included in this study were sixty (60). Randomly selected 60 subjects of *Asthi dhatu kshaya* were diagnosed by *Trividha Pariksha- Darshana* (by visualization), *Sparshana* (by touching) and *Prashna* (by questioners). Subjects were examined for *Kesh prapatan*, *Loma prapatan, Nakha prapatan, Shmashru prapatan. Dwija prapatan, Shrama, Sandhi-saithilya* by questionnaire and score of 0, 1, 2 and 3. Serum Calcium was also done before and after treatment. Subjects were allowed usual diet. Wilcoxon signed rank test for subjective parameters and t test for objective parameter was used for statistical data. For this specific Graph pad In stat 3 was used.

Criteria of Assessment

Subjective Criteria: *Kesh prapatan*, *Loma prapatan, Nakha prapatan, Shmashru prapatan, Dwija prapatan, Shrama, Sandhi-saithilya*

Objective Criteria: Serum calcium

Total effect of therapy: The effect of the therapy was assessed in terms of cured, markedly improved, improved and unchanged. The details are as follows:

1. Cured: Total relief in the signs and symptoms was considered as "cured".

2. Markedly improved: 50% or more improvement in signs and symptoms was termed as "Markedly improved".

3. Improved: Improvement ranging in between 25 to 50% by the patient in signs and symptoms was taken for "Improved".

4. Unchanged: Those subjects presenting less than 25% improvement in their signs and symptoms were categorized as "Unchanged".

OBSERVATION

The study was carried out on 60 subjects. Out of the 60 subjects 25 subjects were age group of 20-25yr, 35 subjects were age group of 25-30yr; 34 subjects were males and 26 females, 12 subjects were Housewife, 12 subjects were in Service, 18 were doing labour type work, 15 subjects were Students, 3 subjects were businessmen; 9 subjects were educated up to Primary level, 3 subjects were educated up to Secondary level, 7 subjects were educated till higher level, 11 subjects were educated up to Undergraduate level, 19 subjects completed Graduation and 11 subjects was Uneducated.; There were 34 Hindu subjects, 16 Muslim, 5 Christian and 5 Buddhist subjects; 10 subjects were weight between 35-40kg, 31 subjects were weight between 40-45kg, 19 subjects were weight between 45-50kg.

The Effect of *Mahish dugdha* on symptoms like *Kesh prapatan, Loma prapatan, Nakha prapatan, Shmashru prapatan*, *Dwija prapatan*, *Shrama* and *Sandhi-saithilya* was 57.14%, 47.73%, 59.78%, 56.27%, 58.06%, 70.23% and 62.37% respectively. Over all percentage of relief was 60.57% and in serum calcium level the relief was only 0.236%. In *Kesh Prapatan* the numbers of pair were 49. Sum of all signed Ranks was 1225. Z value was 6.093, p<0.001. In *Loma Prapatan* the numbers of pair were 20. Sum of all signed Ranks was 210. Z value was 3.92, p<0.001. In *Nakha Prapatan* the numbers of pair were 45. Sum of all signed Ranks was 1035. Z value was 5.8, p<0.001. In *Shmashru Prapatan* the numbers of pair were 25. Sum of all signed Ranks was 325. Z value was 4.37, p<0.001. In *Dwijja Prapatan* the numbers of pair were 36. Sum of all signed Ranks was 666.

Z value was 5.268, p<0.001. In *Shrama* the numbers of pair were 59. Sum of all signed Ranks was 1770. Z value was 6.68, p<0.001. In *Sandhi Saithilya* the numbers of pair were 44. Sum of all signed Ranks was 990. Z value was 5.776, p<0.001. They all were show statistically very highly significant and Serum calcium level was found to be increasing from 9.16±0.54 to 9.18 ±0.53, showing difference of 0.02 ±0.08. Paired t was 1.92, p <0.05 which was considered significance. Among 60 subjects in whom *dugdhahar* (milk) was administered, none subject showed total relief in all symptoms (Cured), 3 subjects (5%) showed 50% or more average improvement in signs and symptoms (Markedly improved), 33 subjects (55%) showed improvement ranging in between 25% to 50% (Improved) and 24 subjects (40%) remain Unchanged i.e. those subjects presenting less than 25% improvement. To assess the effect on investigational parameters paired 't' test was applied. There was a significantly improvement.

DISCUSSION

Asthi is a very important *dhatu* of our body, because the function of *Asthidhatu* is 'Dehadharan' (support the body).[8] It is equated to the hard core of bark of tree. Without stem the tree cannot stand, in the same way without *asthidhatu*, the body is just like the mass of flesh.[9] *Dhatus* are the very important constituents of our body. If they are vitiated, it can produce many diseases. The metabolism of *Asthidhatu* takes place in the *Asthivahasrotas (Channels)*. The *asthiposhakansha* (nutrients of *asthidhatu* / *poshak asthi*) is present in *aahararasa* in liquid state. Due to its liquidity it flows through *asthivahasrotas*, where it is digested by *dhatwagni* of *asthi* and *asthidhatu* (*poshya asthidhatu*) is formed along with its

upadhatu & mala and *poshak majjadhatu* is also formed.[10]

According to *Ayurveda* the qualities of milk are *Brumhana* (*Dhatupushtikar*), *Sandhankar* etc[11]These qualities helpful for the *asthidhatu-pushti* and milk also increase the '*Dharana'* quality of *asthidhatu*. Diet plays an important role in nourishment of body. The diet, which provides all essential nutrients in adequate quantity and in proper proportion, to maintain good health and physical efficiency, is called as Balanced Diet. *Asthidhatupushti* depends on balanced diet. *Aahariya dravya* is responsible for the all types of *dhatupushti & dehadharan*. *Dugdha* is also one type of *Ahariya dravya* and in *Ayurveda*, *Dugdha* (milk) is considered as a *Rasayan* i.e. *Ajastric Rasayan*.[12] It means the *Rasayan* which is taken in the form of *Aahara*. According to *Ayurvedic* philosophy, *asthidhatu* has predominance of *prithvi mahabhuta*, while in *dugdha* (milk) *aap* and *prithvi mahabhuta* are predominant.

According to *Samanya-Vishesh Siddhanta*, the *parthiva mahabhuta* of *dugdha* will nourish the *parthiva* portion of *asthidhatu*. The *parthiva parmanu* (atoms) are needed to be held together to form a definite structure of *asthi*. This is done by '*Shlishta'* guna of *Meda* or *Kapha*. Milk is *snigdha* and it increases *kapha* due to presence of *aap mahabhuta*, therefore it helps to unite the *parthiva parmanu* of *asthi*.

The *asthi* is *guru* in *guna*. Among the 8 types of *dugdha* mentioned in *Ayurvedic* text, the *Mahish dugdha* (buffalo milk) is most *guru*.[13]So it nourishes the *asthi*. Besides having common qualities, *asthi* and milk have few functions in common. The main function of *asthi* is to support body and nourishment of *majjadhatu*, in the same way the function of milk is '*Brumhana'* means

dhatupushthikar and in modern it is also important for the improvement of strength of body. The *upadhatu-Danta* and the *mala-Kesha*, *Loma & Nakha* are originated and get nourishment of *asthidhatu*. Therefore along with *asthi*, milk also nourishes teeth, hair, nail and body hair.

CONCLUSION

In the current study the maximum numbers of subjects were having symptoms of *Kesh prapatan, Nakha prapatan* and *Shrama*. The Percentage of relief on symptoms score of *Kesh prapatan, Loma prapatan, Nakha prapatan, Shmashru prapatan, Dwija prapatan, Shrama* and *Sandhi-saithilya* was 57.14%, 47.73%, 59.78%, 56.27%, 58.06%, 70.23% and 62.37% respectively. Over all percentage of relief were 60.57% and these symptoms have statistically highly significant improvement. Among 60 subjects in whom *dugdhahar* (milk) was administered, none subject showed total relief in all symptoms (Cured), 3 subjects (5%) showed 50% or more average improvement in signs and symptoms (Markedly improved), 33 subjects (55%) showed improvement ranging in between 25% to 50% (Improved) and 24 subjects (40%) remain Unchanged i.e. those subjects presenting less than 25% improvement.

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