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STUDY OF RELATION BETWEEN KAPHA PRAKRITI & STHAULYA.

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ABSTRACT:

According Ayurveda every individual is unique. Not only each individual has different size and shape but its physiological and psychological characters are different. This is because they have their unique predominant Panchamahabhuta, Dosha and Triguna at the time of Shukra-Shonit Sanyog which decides their constitution and this is called as Prakriti of that individual.

जन्ममरणान्तराल भाविनि अविकारिणी दोषस्थिती प्रकृति ॥ रसवैशेषिक सुत्र ट्ट ०१

शुक्रशोणितसंयोगे यो भवेद्दोषः उत्कटः ।

प्रकृतिर्जायते तेन तस्या मे लक्षणं क्षणु ॥

सु.शा.४/६२

Once this Prakriti is decided, every tissue, every organ and every system in the body has this mark or predominance in them and hence they function according to this predominance. If proper care is not taken, then this slight predominance may lead to certain disease. This is because of Prakriti or constitution.

गम्भीरबुद्धिः स्थूलाङ्गः स्निग्धकेशोमहाबलः ।

स्वप्ने जलशयालोकी श्लेष्मप्रकृतिको नरः ॥

शा.सं.पूर्वखंड ६/२२

As per Ayurveda Kapha dominant Prakriti persons have more tendency to become sthul (obese), so it is important to study about the relation between Kapha dominant Prakriti and Sthaulya, so that Kapha dominant Prakriti persons will get idea about their risk to become sthul (obese).

KEY WORDS: Kapha Prakriti, Sthaulya, Dosh, Med dhatu.

INTRODUCTION:

Now a days, every person is running after life's goal. Hence, does not have time to think and act for the healthy life and not able to follow the proper Dinacharya, Rutucharya, dietetic rules and regulations. Due to this artificial living life-style, persons are suffering from many disorders, Sthaulya (obesity) is one of them.

मेदमांसातिवृद्धत्वाच्चलस्फिगुदरस्तनः ॥

अथोपचयोत्साहो नरोऽतिस्थूल उच्यते ॥ (च.सू. २१/९)

A person in whom excessive and abnormal increase of Medo dhatu along with Mansa dhatu is found, it will result into pendulous appearance of buttocks,

abdomen and breasts and whose increased bulk is not matched by a corresponding increase in energy is called as sthul.

Atisthul purush have less vyadhikshamatva and hence considered to be nindita. Acharya Sushruta also said that Madhyam Sharira is the best but Atisthula and Atikrisha are always affected with some complaints. Acharya Charak has thrown light on the eight varieties of impediments which are designated as Ashta-Nindita Purusha, Ati sthula is one of them.

Due to Viruddha Upakram, the sthaulya vyadhi is difficult to cure as compared to Karshya i.e. krichsadhya.

स्थौल्यकार्ष्ये वरं कार्ष्ये.....।

च.सू. २१/१७

कृश् स्थुलातु पुजितः।

सु.सू. १५/४२

कार्ष्यमेववरंस्थौल्यान्नहिस्थौल्यस्यभेषजम् ॥

अ.ह.सू. १४/३१

Sthaulya is Vyadhi akshama sharir or vyadhi asahani sharir. These are incapable to resist the diseases

सततं व्याधितावेतावतिस्थूलकृशौ नरौ । च.सू. २१/६

In Sthaulya, increased Meda, Agni and Vayu, which creates complications like Prameha-Pidika, Jwara, Vidradhi and Bhagandara etc. Besides this, Sthaulya precipitates diseases like diabetes mellitus, coronary heart diseases, gallstone, osteoarthritis, hypertension, infertility, and atherosclerosis etc. Derangement of Agni or digestive power leads to production of Ama, which disturbs tissue fire of fatty tissues and blocks the proper formation of further tissues. Improperly formed fatty tissue accumulates in the body causing obesity.

In Ayurveda Sthaulya has been described since very early days in various Samhitas, Sangraha granthas, Nighantu, etc. as Charaka has described Sthaulya among the eight most unwanted impediments (Ch. Su. 21) and Santarpanjanita roga (Ch. Su. 23). In pathogenesis of Sthaulya, Kapha (Kledaka Kapha), Vata (Samana & Vyana Vayu), Meda (fat /lipid) and Medodhatvagni Mandyata are main responsible factors.

Commonly Sthaulya is due to excessive eating and lack of adequate exercise.

Acharya Charaka also lists this problem under Santarpanjanita Vyadhi (Ch. Su. 23). He listed eight defects underlying Sthaulya Purusha-Ayushohrasa, Javoprodha, Alpa-vyavayita, Daurbalya, Daurgandhya, Swedabadha, Ati-trishna, Ati-kshudha (Ch. Su. 21/3).

Aadhamalla, commentator of Sharangdhara describes the sthulanga as –

..... स्थूलाङ्गः स्थूलशरीरः मेदोऽधिकत्वात् ॥

The term Medasvi is suggestive of nutritional status of the individuals indicating a well nourished disposition rather than disease. Lack of physical activity, frequent intake of food, industrialization, stress during the work, various

types of junk food e.g. fast food, bakery items, increased amount of the soft drink result in Sthaulya.

AIM:-

To study the relation between Kapha Prakriti & Sthaulya.

OBJECTIVES:-

1. To detect symptoms of Sthaulya as explained in Ayurvedic Samhitas, in selected volunteers.
2. To calculate BMI, Waist-hip ratio as well as to calculate total body fat percentage in selected volunteers.
3. To find out percentage of sthul volunteers from selected sample.
4. To evaluate the exact relationship between Kapha Prakriti & Sthaulya.

MATERIALS AND METHODS:

Material:

- 1) Ayurvedic texts. 2) Modern medical Books, Research Journals, Internet sources etc.
- 3) Study sample: - 100 male volunteers of Kapha Prakriti between the age group of 30-60 years.

Instruments used for study:-

1. Weighing Machine
2. Measuring tape (Tailor tape)
3. Karada scan (Body fat percentage calculator)
4. Stethoscope & B.P. apparatus

Methods:-

The Study was carried out in two parts:

1. Conceptual
2. Observational

1. Conceptual Study:

It includes study of Ayurvedic and Modern literature.

1. Ayurvedic references of Sthaulya were studied from Ayurvedic samhita and text book.
2. All the references of obesity was studied from modern text and authorized website.

2. Observational:

1] Source of data/Raw Data (Selection of Patients):

Total 100 volunteers of Kapha dominant Prakriti were randomly selected from OPD and IPD of our hospital.

2] Selection Criteria:

A] Inclusive Criteria:

1. 100 healthy male volunteers of Kapha Prakriti between the age group of 30-60 years were selected.

B] Exclusive Criteria:

1. Persons having any endocrinal or metabolic disorders, having any addiction were excluded. Persons in which any surgery has done, having chronic illness & persons on specially prescribed diet were excluded.
2. Diseases were excluded as - Diabetes mellitus, hypertension, any cardio-vascular disease, etc.
3. Drug Induced obesity.
4. Patient associated with any systemic disorders were excluded.

Methodology

- 1) 100 Kapha Prakriti volunteers were selected for study, as per inclusion criteria.
- 2) Symptoms of Sthaulya were detected as explained in Ayurvedic Samhitas, in selected volunteers.
- 3) BMI was calculated as per WHO's formula.
- 4) Waist-hip ratio of these volunteers were calculated as per rules of WHO.
- 5) Total body fat percentage were calculated.
- 6) Percentage of Sthaulya in Kapha Prakriti was calculated with the help of above said readings.
- 7) Relation between Kapha Prakriti & Sthaulya were interpreted with the help of statistical analysis.

CRITERIA FOR ASSESSMENT:**A] Ayurvedic Parameters:****Gradation for Subjective (Parameters)****Criteria:****Chala Sphika, Udara, Stana:-**

- a) Absence of Chalatra = 0
- b) Little visible movement after fast movement = 1
- c) Little visible movement after moderate movement = 2
- d) Movement after mild movement = 3
- e) Movement even after changing posture = 4

Kshudra Swasa / Ayasena Swasa :-

- a) Dyspnea after heavy work but relieved soon & up to tolerance. = 0
- b) Dyspnea after moderate work but relieved late & up to tolerance = 1
- c) Dyspnea after little work but relieved soon & up to tolerance = 2
- d) Dyspnea after little work but relieved soon & beyond tolerance = 3
- e) Dyspnea in resting condition = 4

Alasya/ Utshaha hani:-

- a) No = 0
- b) Doing work satisfactory with initiation late in time = 1
- c) Doing work unsatisfactory with lot of mental pressure & late in time = 2
- d) Not starting any work in his own responsibility, doing little work very slow = 3
- e) Does not have any initiation & not want to work even after pressure = 4

Daurbalyata (Alpa Vyayam):-

- a) Can do routine exercise = 0
- b) Can do moderate exercise without difficulty = 1
- c) Can do only mild exercise = 2
- d) Can do only mild exercise with very difficulty = 3
- e) Cant do even mild exercise = 4

Nidradhikya:-

- a) Normal sleep 6-7 hrs/ day = 0
- b) Sleep up to 8hrs / day with Anga Gaurav = 1
- c) Sleep up to 8hrs / day with Anga Gaurav & Jrimbha = 2
- d) Sleep up to 10hrs / day with tandra = 3
- e) Sleep up to 10hrs / day with Tandra & Klama = 4

Daurgandhata:-

- a) Absence of bad smell = 0
- b) Occasionally bad smell limited to close areas difficult to suppress with deodorants = 1
- c) Persistent bad smell felt from long distance is not suppressed by deodorants = 2
- d) Persistent bad smell felt from long distance even Intolerable to the patient himself. = 3

Snigdhagata:-

- a) Normal snigdhata (Without any prominent sign of Rukshata) = 0
- b) Oily luster of body in summer season = 1
- c) Oily luster of body in dry season = 2
- d) Excessive oily luster of body in dry season can be removed with difficulty = 3
- e) Persistent & profuse slickness all over body = 4

Atipipasa:-

- a) Normal thirst = 0
- b) Up to 1 lit excess intake of water = 1
- c) 1 to 2 lit excess intake of water = 2
- d) 2 to 3 lit excess intake of water = 3
- e) More than 3 lit intake of water = 4

Atikshuda:-

- a) Unwilling for food but can take the meal = 0

- b) Willing towards only most liking food & not to others = 1
- c) Willing towards only one among Katu/ Amla / Madhura food = 2
- d) Willing towards some specific Ahara / Rasa Vishesa =3
- e) Equal willing towards all the Bhojjaya padartha = 4

Kruccha Vyavaya:-

- a) Normal performance without external stimulation =0
- b) Decreased frequency with normal performance =1
- c) Decrease frequency with insufficiency =2
- d) Normal performance with external stimulation =3
- e) No sexual stimulation at all =4

Gatra Sada & Shrama:-

- a) No fatigue = 0
- Little fatigue in doing hard work = 1
- c) Moderate fatigue in doing routine work = 2
- Excessive fatigue in doing routine work = 3
- e) Excessive fatigue even in doing little work = 4

Swedadhikya:-

- a) Sweating after heavy work = 0
- Sweating after little work.= 1
- c) Profuse sweating after heavy work = 2
- Profuse sweating after minimum work = 3
- e) Sweating even in resting condition = 4

Alpacheshta:-

- a) Can do all movements of body easily = 0
- b) Can do all movements of body but very occasionally movement restriction = 1
- c) Frequent difficulty in doing body movements = 2
- d) Can do body movements with great efforts = 3
- e) Can't do any body movement = 4

Kaas:-

(Symptoms of kaas excluded which has cause other than Sthaulya)

- a) No cough = 0
- Occasional cough responding to treatment = 1
- c) Moderate cough responding to treatment = 2
- d) Frequent cough responding to treatment = 3
- e) Excessive cough not responding to treatment = 4

Uruvridhi:-

- a) Normal thighs = 0
- b) Mild increase in size of thighs but can walk without any difficulty = 1
- c) Moderate increase in size of thighs but can walk with little difficulty = 2

- d) Excessive increase in size of thighs & friction in between thighs; but can walk with difficulty = 3
- e) Excessive & visible increase in size of thighs & friction in between thighs , can walk only with major efforts = 4

Aayusho-Rhasa:-

- a) No signs of early aging = 0
- Very few signs of early aging (younger than age) = 1
- c) Signs of early aging appropriate to age = 2
- More signs of early aging inappropriate to age = 3
- e) Multiple signs of early aging with severity = 4

Javoparodha:-

- a) Enthusiastic for work even in major adversities = 0
- b) Mostly enthusiastic except few occasions = 1
- c) Frequently decreased enthusiasm but can be motivated easily = 2
- d) Enthusiasm for work only after great effort = 3
- e) Complete absence of enthusiasm for work = 4

Gandarbuda:-

- a) No abnormal growth anywhere on body = 0
- b) Mild & transient abnormal growth anywhere on body = 1
- c) Significant but treatable abnormal growth anywhere on body = 2
- d) Abnormal growth anywhere on body requiring long term treatment = 3
- e) Recurrent abnormal growth anywhere on body = 4

Kanthadishuadhimansam:-

- a) No abnormal growth in neck region = 0
- b) Abnormal growth of very small size in the neck region = 1
- c) Significant abnormal growth in neck region requiring treatment = 2
- d) Visible significant abnormal growth in neck region requiring treatment = 3
- e) Recurrent abnormal growth(s) in neck region occupying larger portion of neck = 4

ASSESSMENT OF STHAULYA ACCORDING TO AYURVEDIC PARAMETERS :-

No.	Sthaulya Score	Assessment
1	0-18	No sthulata (Normal Person)
2	19-38	Alpasthula (Mild obesity)
3	39-57	Madhyamasthula (Moderate obesity)
4	58-75	Atisthula (Sever obesity)

Objective Parameters:

1. Anthropometric Assessments:

A] Biological Assessment:

- Total Body fat percentage is calculated by Karada scan.
- Average body fat percentage for men is 18 – 24% and $\geq 25\%$ there is obesity in men.

B) Waist – hip ratio:

- Normal value of waist- hip ratio for women is 0.8 and for men is 0.9.

C) Body Mass Index:

- BMI = Body Weight (kg)/ (Height in Meter)²

	Obesity Class	BMI (mg/mt2)
Underweight		< 18.50
Normal		18.5 – 24.99
Overweight		25.0 – 29.99
Obesity	I	30.0 – 34.99
	II	35.0 – 39.99
Extreme Obesity.	III	> 40

OBSERVATIONS AND RESULTS:

Statistical Analysis:

All the lakshanas are analysed using summary statistics like – mean, S.D., median and quartiles. To test whether a specific lakshana has observed significantly, we have used ‘One sample Wilcoxon signed rank test’ with hypotheses –

H_0 : There is no significant incidence of lakshana.

H_1 : There is significant incidence of lakshana.

Various objective parameters, which are quantitative in nature as presented along with their mean, S.D. and 95% Confidence interval. The parameters – BMI, tricep skin fold thickness and body fat percentage were tested for whether they

are significantly higher than normal values using ‘one sample t test’ with hypotheses

H_0 : Value of parameter is equal to normal value.

H_1 : Value of parameter is significantly higher than normal value.

For all test, level of significance is kept at 5%.

Statistical significance of parameters – BMI, Waist – Hip Ratio and Total body fat percentage:

1) BMI:-

The mean BMI was 30.627 kg/m² (S.D. = 3.069 kg/m²) which, according to one tailed t test, was observed to be significantly higher than 24 kg/m² at 5% level of significance (t = 18.335, P-value < 0.001). It is also significantly higher than 30 kg/m² (t = 2.043, P-value < 0.001). Thus we can say that, average BMI for volunteers falls under category “obese”.

BMI	No. of volunteers	
	Count	%
Underweight	00	00.00%
Normal	02	02.00%
Overweight	32	32.00%
Obese I	57	57.00%
Obese II	09	09.00%
Obese III	00	00.00%
Total	100	100.00%

2) Waist-Hip Ratio:-

The mean waist-hip ratio was 0.986 (S.D. = 0.022) which, according to one tailed t test, was observed to be significantly higher than 0.9 at 5% level of significance (t = 39.986, P-value < 0.001). Thus we can say that, average waist-hip ratio of volunteer’s falls under category “obese”.

Waist-hip ratio	No. of volunteers	
	Count	%
Normal	00	00.00%
Obese	100	100.00%
Total	100	100.00%

3) Body Fat Percentage:-

The mean body fat percentage was 30.638% (S.D. = 3.326%) which, according to one tailed t test, was observed to be significantly higher than 24% (normal value) at 5% level of significance (t = 19.959, P-value < 0.001). Thus we can say that, average body fat percentage for volunteers falls under category “obese”.

Total Body Fat Percentage	No. of volunteers	
	Count	%
Normal	05	05.00%
Obese	95	95.00%
Total	100	100.00%

4) Assessment of incidence of Lakshanas:

Parameters	Summary statistics						Wilcoxon signed rank statistic	P-value (one-tailed)
	Mean	S.D.	Q ₁	Median	Q ₃	n		
Chal (sphika udarstana)	2.610	0.973	2	3	3	100	4851	< 0.001
Kshudra Shwas	2.340	0.831	2	3	3	100	4851	< 0.001
Aalasya /Utshahani	2.890	0.920	2	3	4	100	5050	< 0.001
Daurbalya (Alpa Vyayam)	2.740	1.070	2	3	4	100	4851	< 0.001
Nidradhikya	2.890	0.942	2	3	4	100	5050	< 0.001
Daugandhya	0.870	0.525	1	1	1	100	3160	< 0.001
Snigdhangata	1.650	0.642	1	2	2	100	4656	< 0.001
Ati-Pipasa	2.900	0.882	2	3	4	100	4851	< 0.001
Ati-Kshuda	3.000	0.804	2	3	4	100	5050	< 0.001
Kruccha VyaVaya	1.860	0.841	1	2	2	100	4753	< 0.001
Gatra-sada and Shrama	2.690	1.022	2	3	3	100	4851	< 0.001
Swedadhikya	2.640	1.049	2	3	3	100	4753	< 0.001
Alpa chesta	1.170	0.766	1	1	2	100	3321	< 0.001
Kasa	0.360	0.523	0	0	1	100	595	< 0.001
Uruvridhi	1.850	0.783	1	2	2	100	4560	< 0.001
Ayushorhasa	2.700	1.030	2	3	3.25	100	4950	< 0.001
Javoparodha	2.830	0.943	2	3	4	100	5050	< 0.001
Gandarbuda	0.370	0.485	0	0	1	100	703	< 0.001
Kanthadishuadhi mansam	0.250	0.500	0	0	0	100	253	< 0.001
Total Score of Sthoulya	38.610	13.608	28	41	49.25	100	5050	< 0.001

The mean score for chala sphik, udara, stana was 2.610 while median score was 3. The Wilcoxon signed rank test suggested that there was significant incidence of chala sphik, udara, stana in volunteers (P-value < 0.001).

The mean score for Kshudra shwas was 2.340 while median score was 3. The Wilcoxon signed rank test suggested that there was significant incidence of Kshudra shwas in volunteers (P-value < 0.001).

The mean score for Aalasya was 2.890 while median score was 3. The Wilcoxon signed rank test suggested that there was significant incidence of Aalasya in volunteers (P-value < 0.001).

The mean score for Daurbalya was 2.740 while median score was 3. The Wilcoxon signed rank test suggested that there was significant incidence of Daurbalya in volunteers (P-value < 0.001).

The mean score for Nidradhikya was 2.890 while median score was 3. The Wilcoxon signed rank test suggested that there was significant incidence of Nidradhikya in volunteers (P-value < 0.001).

The mean score for Daurgandhya was 0.870 while median score was 0.525. The Wilcoxon signed rank test suggested that there was significant incidence of Daurgandhya in volunteers (P-value < 0.001).

The mean score for Snigdhangata was 1.650 while median score was 2. The Wilcoxon signed rank test suggested that there was significant incidence of Snigdhangata in volunteers (P-value < 0.001).

The mean score for Ati-pipasa was 2.900 while median score was 3. The Wilcoxon signed rank test suggested that there was significant incidence of Atipipasa in volunteers (P-value < 0.001).

The mean score for Ati-Kshuda was 3 while median score was 3. The Wilcoxon signed rank test suggested that there was significant incidence of Ati-Kshuda in volunteers (P-value < 0.001).

The mean score for kruccha vyavaya was 1.86 while median score was 2. The Wilcoxon signed rank test suggested that there was significant incidence of Kruccha vyavaya in volunteers (P-value < 0.001).

The mean score for Gatra-sada and shrama was 2.690 while median score was 3. The Wilcoxon signed rank test suggested that there was significant incidence of Gatra-sada and shrama in volunteers (P-value < 0.001).

The mean score for Swedadhikya was 2.640 while median score was 3. The Wilcoxon signed rank

test suggested that there was significant incidence of Swedadhikya in volunteers (P-value < 0.001).

The mean score for Alpa chesta was 1.17 while median score was 1. The Wilcoxon signed rank test suggested that there was significant incidence of Alpa chesta in volunteers (P-value < 0.001).

The mean score for Kasa was 0.360 while median score was 0. The Wilcoxon signed rank test suggested that there was significant incidence of kasa in volunteers (P-value < 0.001).

The mean score for Uruvidhi was 1.850 while median score was 2. The Wilcoxon signed rank test suggested that there was significant incidence of Uruvidhi in volunteers (P-value < 0.001).

The mean score for Ayushorhasa was 2.700 while median score was 3. The Wilcoxon signed rank test suggested that there was significant incidence of Ayurshorhasa in volunteers (P-value < 0.001).

The mean score for Javoparodha was 2.830 while median score was 3. The Wilcoxon signed rank test suggested that there was significant incidence of Javoparodha in volunteers (P-value < 0.001).

The mean score for Gandarbuda was 0.37 while median score was 0. The Wilcoxon signed rank test suggested that there was significant incidence of Gandarbuda in volunteers (P-value < 0.001).

The mean score for Kanthadishuadhimsam was 0.250 while median score was 0. The Wilcoxon signed rank test suggested that there was significant incidence of Kanthadishuadhimsam in volunteers (P-value < 0.001).

The mean total score of sthoulya was 38.610 while median score was 41. Which was observed to be significant as suggested by Wilcoxon signed rank test (P-value < 0.001).

5) Estimation of various objective parameters:-

Sr. No.	Parameter	Mean	S.D.	N	95% C.I.
1	B.M.I.	30.627	3.069	100	[30.025, 31.228]
2	Waist hip Ratio	0.990	0.022	100	[0.986, 0.994]
3	Total Body fat Percentage	30.638	3.326	100	[29.986, 31.29]

The average B.M.I. for 100 volunteers was found to be 30.627 kg/m² with standard deviation of

3.069 kg/m². The 95% confidence interval for mean B.M.I. is [30.025, 31.228]

The average waist hip ratio for the 100 volunteers was 0.990 with standard deviation of 0.022. The 95% Confidence interval for mean waist hip ratio was observed to be [0.986, 0.994].

The average total body fat percentage for 100 volunteers was found to be 30.638% with standard deviation of 3.326%. The 95% confidence interval for mean total body fat percentage was [29.986, 31.290]

DISCUSSION:

Discussion About Observations and Results:-

Discussion About subjective Parameters

(Sthaulya Lakshnas):-

1. Chala Sphik, Udara, Stana:-

It may be due to Guru and Snigdha gunas of Kapha. Both gunas are also seen in Meda dhatu. So increase in Snigdha and Guru gunas of Kapha due to similar ahar-vihar, may cause increase in Meda dhatu in Kapha Prakriti people. The increased Meda dhatu may get deposited on sphik, udar and stana and give them pendulous appearance. So chala sphik, udara, stana is seen.

2. Kshudra Shwas:-

The mean score for Kshudra shwas was 2.340 while median score was 3. The Wilcoxon signed rank test suggested that there was significant incidence of Kshudra shwas in volunteers (P-value < 0.001).

It may be due to the increased Snigdha, Shita, Mrutsna gunas of Kapha. Increase in these gunas may cause increase in secretions in Pranavah stotas (respiratory track), resulting in disturbance in normal functioning of Pran-Udan vayu. So that person may cause dyspnea after little work, resulting in kshudra shwas.

3. Aalasya:-

It may be due to Guru, Manada, Tama (Sharangadharokta) gunas of Kapha. Increase in these gunas may cause heaviness as well as laziness (due to Tama guna) in body, leading to Aalasya.

4. Daurbalya:-

It may be due to the Guru guna of Kapha. Increase in Guru guna causes heaviness in body as well as increase in size of body resulting in difficulty in doing routine exercise/routine works called daurbalya.

5. Nidradhikya:-

It may be due to Guru, Manda and Tama guna of Kapha. Increase in Guru and Manda guna may cause heaviness of body, increased Tama guna may alter functioning of mind, resulting in Nidradhikya.

6 & 7. Swedadhikya & Daurgandhya:-

It may be due to Snigdha and Mrutsna gunas of Kapha. Increase in these gunas may cause increase in kleda in body. Increased Meda may cause increased picchilata in body. Due to these reasons, there may be increased sweda called as Swedadhikya.

In sthaulya there is increase in Meda dhatu. Meda is the mul sthan of sweda-vaha strotas. As well as sweda is the mala of Meda dhatu. So increase in Meda dhatu in sthauya may cause increase in sweda called swedadhikya.

Increase in quantity of sweda may cause daurgandhya to body. As well as increased Meda has property of daurgandhya, so increased Meda itself may cause daurgandhya.

8. Snigdhangata:-

The main guna of Kapha as well as Meda is snigdha. So increases in Kapha and/ Meda causes increase in snigdha guna in body, that may result in Snigdhangata.

9. Ati-Pipasa:-

It may be due to increase in Kapha and Meda (due to Aashrayashrayi bhav there may be increase in Meda due to increase in Kapha). Due to increased Kapha and Meda there may be disturbance in normal gati of Vayu. This Vimargag Vayu in koshta may cause more ignition of Jatharagni. Due to increased Jatharagni there may be increase in Tikshna & usha guna in body. Due to increased Thikshna & Ushna gunas there may be increase in demand of water in body may result in Ati-pipasa.

10. Ati-Kshuda:-

It may be due to increase in Kapha and Meda (due to Aashrayashrayi bhav there may be increase in Meda due to increase in Kapha). Due to increased Kapha and Meda there may be disturbance in normal gati of Vayu. This Vimargag Vayu in koshta may cause more ignition of Jatharagni, may result in Ati-Kshuda.

11. Kruccha Vyavaya:-

In Sthaulya, due to excess increase in Meda dhatu there may be decreased nutrition (poshan) and growth of next dhatus. This may cause less formation of Shukra dhatu as well as disturbance

(avrodh) in Shukra vaha strotas, this may result in decreased maithuna-shakti called as Kruccha vyavaya.

12. Gatra-sada and Shrama:-

It may be due to Guru, Sthira gunas of Kapha and Meda. Increase in these gunas causes heaviness in body may resulting in fatigue in doing routine work called as Gatra-sada and shrama.

13. Alpa- Chesta:-

It may be due to the Manda and Guru gunas of Kapha as well as increased quantity of Meda. Increased Guru guna & increased Meda causes heaviness in body due to this heaviness there may be difficulty in body movements. Manda guna itself indicates decreased activities, so increased Manda guna may cause decreased body movements called as Alpachesta.

14. Kasa:-

When there is extreme sthaulya, there is more and more deposition of Meda dhatu as well as increase in Snigdha, Shita, Mrutsna gunas of Kapha. This may cause increased secretions, reasulting increased resistanse in Pranavah strotats. Body tries to release this resistance by coughing reflex, reasulting in Kaas.

15. Uruvridhi:-

It may be due to Guru, Sthira gunas of Kapha as well as increased Meda dhatu. Increased Meda dhatu may get deposited on Uru (thighs). Increased Guru, Sthira gunas may helps this Medovridhi and Meda deposition resulting in Uruvridhi.

16. Ayushorhasa:-

It may be due to excessively increased Meda dhatu in Sthaulya. Due to excess Meda there is decrease in formation of other dhatus, increased Meda is also not prakrut. Alpa-poshana of other dathus may cause decreased vitality of body and increased signs of early aging called as Ayushorhas.

17. Javoparodha:-

The "Jav" means enthusiasm. In sthaulya there is Javoparodha, it may be due to Guru, Manda gunas of Kapha and Shithilata and Sukumarata of Meda. Due to increase in Guru, Manda gunas there may be increase in guruta (heaviness) in body, increased Shithilata and Sukumarata may cause kashtasahatva and Aalasya, and this may be resulting in Javoparodha.

18. Gandarbuda:-

It may be due to excess increase in Meda dhatu. Excessive Meda may get accumulated on various

parts of body in the form of cysts of fat (Meda), called as Gandarbuda.

19. Kanthadishuadhimsam:-

It may be due to Guru and Sthira gunas of Kapha and extreme deposition of Meda around neck.

While seeking the guna based cause for appearance of specific lakshana, repetition is inevitable. But a single guna can manifest itself in various ways.

Assessment of Sthulata According to Ayurvedic Parameters :

Volunteers are divided into four groups of Sthaulya according to severity of Ayurvedic parameters. The criteria for grouping are shown below.

No.	Sthaulya Score	Assessment
1	0-18	No sthulata (Normal Person)
2	19-38	Alpasthula (Mild obesity)
3	39-57	Madhyamasthula (Moderate obesity)
4	58-75	Atisthula (Sever obesity)

No.	Assessment of Sthaulya	No. of volunteers	
		Count	%
1	No sthulata (Normal Person)	09	09.00%
2	Alpasthula (Mild obesity)	29	29.00%
3	Madhyamasthula (Moderate obesity)	55	55.00%
4	Atisthula (Sever obesity)	07	07.00%

9 volunteers (9%) were not having sthulata, 29 volunteers (29%) were observed with Alpasthulata, 55 volunteers (55%) were Madhyamasthula while 7 volunteers (7%) were Atisthula.

The mean total score of Sthaulya was 38.610 while median score was 41. Which was observed to be significant as suggested by Wilcoxon signed rank test (P-value < 0.001).

From above observations we can say that Kapha dominant Prakriti people may have Alpa or Madhyama sthulata.

DISCUSSION ON OBJECTIVE PARAMETERS

B.M.I. , Total body fat percentage :-

It is seen that, the average values of B.M.I., and Total body fat percentage of 100 Kapha

dominant Prakriti volunteers are more than that of normal values.

It may be due to following reasons-

The etiology of obesity is far more complex than simply an imbalance between energy intake and energy output. Obesity is far more than simply the result of eating too much and/or exercising too little. Possible factors in the development of obesity include the following:-

Genetic factors, Metabolic factors, Level of activity, Endocrine factors, Race, sex, and age factors, Ethnic and cultural factors, Socioeconomic status, Dietary habits, Smoking cessation, Pregnancy and menopause, Psychological factors, History of gestational diabetes, Lactation history in mother.

Thus the status and presence (in quality & quantity) of any kind of tissue or molecule in body (fat here) is contributed by multiple factors. Some are known to modern physiology; but there may be many unknown factors. What we have discussed here are prominent among known factors. It is from obtained information, quite possible for Kapha Prakriti people to have these known (& unknown) factors in abundance, due to genetic & other reasons. This can be seen as prominent possible reason behind higher fat percentage observed in Kapha Prakriti persons.

Waist-Hip Ratio:-

From above observation it is seen that, the average value of waist-hip ratio is more than that of normal value. It may be due to excess fat deposition around waist and hips.

So we can say that Kapha dominant Prakriti people may show android fat distribution or central obesity.

CONCLUSION:

1. From observations and results it is seen that, there is significant incidence of Sthaulya lakshanas in Kapha dominant Prakriti persons.
2. The average values of objective parameters like B.M.I., waist-hip ratio, and total body fat percentage

are statistically & significantly higher than that of normal values in Kapha Prakriti persons.

3. Kapha Prakriti persons have significantly higher incidence of Sthaulya as defined in Ayurvedic and modern views & they show characters of Ayurvedic (& modern) definition of Sthaulya.

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