Research Article

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STUDY OF DHATU SARATA AND ITS ASSOCIATION WITH BLOOD INDICES

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ABSTRACT

Ashta Sarata parikshana is explained especially to determine the strength of person. It is important to add modern parameter to give authenticity to the ancient subjective parameter. 50 healthy male students between the ages of 18-25 years were selected for study. Sarata parikshan was done with the help of standard sarata parikshan proforma specially prepared by AYUSOFT C-DAC Centre for Development of Advance Computing Pune, India to find out percentage of each dhatu separately. Blood indices have been formulated by modern science to detect type of anaemia by extracting information about structure, morphology of Red Blood Cells and about haemoglobin. Blood indices give complete information of Red Blood Cells. Blood sample were collected for analysis of blood indices and this was done by auto analyser. This was survey type co relational research. The statistical analysis shows that "there is a relation between Rakta sarata and Blood indices", it's a positive relation. The person having higher percentage of Rakta sarata possesses good value of Blood indices.

Keywords: Dhatu Sarata, Blood indices, Red Blood Cell, Correlation.

INTRODUCTION

In present era of fast paced, life people are ignoring or unable to give proper attention towards the health. Also the irregular food and sleep habits, lack of exercise, excessive medication, excessive stress all these becoming a contributory factors for health hazards. Psychological causes affect on physical health of an individual. If we are willing for good health, happiness, enjoy longevity then everybody should pay attention to maintain equilibrium of root factors of body. (Dosha, Dhatu and Mala). Dosha, Dhatu and Mala are root factors of living body, so one has to learn their lakshanas. Dosha, Dhatu and Mala are compared to roots because as roots starts life of plant, these three factors starts life of human¹. Dosha are responsible for creating diseases in living body, Malas are those constituents of the body which are regularly eliminated from the body and thus keep body clean, and those which give support and strength to living body are called as Dhatus. For prevention from disease good immunity is needed and this is achieved by good quality dhatu, as the dhatus give support and strength to living body. There are seven dhatus explained by Acharyas: Rasa, Rakta, Mamsa, Meda, Asthi, Majja and Shukra. The rakta dhatu produced from rasa, mamsa from rakta, meda from mamsa, asthi from meda, majja from asthi, and shukra from majja. Like this proceeding dhatu derived from succeeding dhatu².

Concept of Sarata

During formation of foetus all dhatus are formed, dhatu which shows maximum characters which are mentioned in samhitas are called as best dhatu of that individual. Dhatusarata is described with respect to ashtadhatu sarata i.e. Rasa, Rakta, Mamsa, Medas, Asthi, Majja, Shukra and Sattva i.e. Ashtavidhsarata. Dhatu Sarata or Tissue excellence is a quality assessment of seven dhatu, and

sattva i.e. mind (psychological). Examination of Dhatu Sarata is done at physical and psychological level².

Why sarata parikshana is done?

To determine the strength of dhatu or the strength of person sarata parikshana is explained by our Acharyas. If any dhatu is weak quality in a person it is treated by giving rasayana chikitsa as it improves quality of dhatu. Otherwise the weak quality dhatu results in diseases. Examination of the sarata of dhatus helps in the preventive and treatment aspect i.e. the dhatu which is weak quality in the individual one can treat the individual with good diet to increase the strength of that dhatu. Here we can determine the qualities of rakta dhatu in different dhatu sara purush with help of Blood Indices. A comparative study is done about properties and character of rakta dhatu in different dhatu sarata. Ayurved gives prime emphasis to health prophylaxis along with treatment². It is always better to prevent the disease than treating it. But first we should know the condition of dhatus whether they are strong or weak. If any dhatu is weak then it is necessary to increase the strength of that dhatu. And to know the strength of dhatu our Acharyas mentioned the sarata parikshana. If we consider sarata, Acharyas have mentioned the characteristics to determine dhatusarata. The higher percentage of characteristics represents the good quality of dhatu^{1,2}. For Rakta sarata characteristics has been given by which percentage of sarata is determined and if we see according to modern aspect, the blood indices give us a picture of properties and character of red blood cells. Blood indices give quantitative value of properties of red blood cells. Investigations conducted were: MCV: Mean corpuscular volume, MCH: Mean corpuscular haemoglobin, MCHC: Mean corpuscular haemoglobin concentration, CI: Colour Index^{3,4}. So if we consider both Ayurvedic and modern

view regarding RBC properties there must be some correlation in between rakta sarata and blood indices. Blood indices show the complete picture about morphology of RBCs along with amount of haemoglobin present; this gives the profile about RBCs in different dhatu sarata of person. This will help researcher to establish a correlation between modern parameter and Ayurvedic parameter. So this study was carried out to see whether both the theories co-relate to each other or not, with the help of sarata parikshana proforma and blood indices.

Aim and Objective

Aim

Assess the Co-relation between 'Dhatu Sarata' and 'Blood indices'.

Objectives

- Calculate the percentage of dhatu sarata with the help of standard sarata parikshan proforma.
- Study of blood indices with help of auto analyser.
- Develop the parameters with modern instrument in Ayurveda especially in "Kriya sharir"

MATERIAL AND METHODS

- 50 healthy male students between the ages of 18 -25 years.
- Standard proforma of sarata parikshan was taken to calculate the sarata percentage of each sarata of each individual. (AYUSOFT C-DAC -Centre for Development of Advance Computing)
- Blood sample for analysing blood indices
- The values of each blood indices (MCV, MCH, MCHC, CI) were drawn.

Inclusion

- 50 male healthy subjects were included.
- Age group from 20-25 years was taken.
- Subjects belonging to same environmental condition were taken to avoid any bias.

Exclusion

- Female subjects were excluded to avoid any bias.
- Male subjects having any blood related disorder were excluded.

Sarata parikshana of 50 subjects were done with the help of standard sarata parikshana proforma AYUSOFT C-DAC (Centre for Development of Advance Computing) Pune, India along with other collaborating institutes. Ministry of Communications and Information and Technology, Govt. of India had developed the AYUSOFT software. After performing sarata parikshan, the percentage of sarata lakshanas of every dhatu was calculated and results were put in chart. The values of each blood indices (MCV, MCH, MCHC, CI) were drawn. Then the values of MVC, MCH, and MCHC and CI were calculated. The chart was drawn, to understand the relation in tabular form and further statistical analysis was done.

RESULTS

The Data collected has been represented graphically.

All the sarata has been compared with each of the blood indices separately.

- Serial of 50 subjects were same in all charts.
- Blood indices have been arranged in decreasing order.
- Sarata was not arranged in any order.

The graphs were made according to the sarata lakshana percentage, compared to each Blood index separately. In all graphs individuals were same and were plotted at same place in all charts, with their sarata percentage and blood index value respectively.

- On X-axis subjects have been placed.
- Y-axis compares the sarata and blood index values.

The value of CI was very low so to show the comparison properly it was converted into percentage.

Rasa sarata and Blood Indices

Rasa sarata was studied with each of the blood indices; a nonlinear or random relation could be seen after studying the Graph 1.

Rakta sarata and Blood Indices

Rakta sarata was studied with all of the indices; a linear relation is visible between Rakta sarata and all of the blood indices in the Graph 2.

Mamsa sarata and Blood Indices

Mamsa sarata and each of the blood indices were studied; a non linear or random relation could be seen in the Graph 3.

Meda sarata and Blood Indices

Meda sarata was studied with each of the blood indices; a nonlinear or random relation could be seen after studying the Graph 4.

Asthi sarata and Blood Indices

Asthi sarata was studied separately with each of the blood indices separately; a non linear relation could be seen in Graph 5.

Majja sarata and Blood Indices

Majja sarata was studied with each of the blood indices separately; a nonlinear or random relation was visible in Graph 6.

Shukra sarata and Blood Indices

Shukra sarata was studied with each of the blood index; a nonlinear or random relation could be seen after study (Graph 7).

Satwa sarata and Blood Indices

- Satwa sarata was studied with each of the blood indices; nonlinear relation could be seen.
- The graphical study of all the dhatu sarata was done separately with each of the blood index; only Rakta dhatu sarata showed somewhat a linear relation with all of the blood indices; whereas nonlinear relation

could be seen or found between other dhatu sarata and of the Blood indices. (Graph 8)

All the dhatu sarata were studied with respect to each of the Blood index. It was clearly visible that all other dhatu sarata showed a nonlinear or random relation with blood

indices except Rakta Sarata. The graphical studied showed a nearly linear relation between Rakta sarata and blood Indices, this linear relation was further confirmed by applying correlation test. Association in terms of correlation was used, showing strong and significant relation between Rakta sarata and Blood Indices.

Graph 1: Relation between Rasa sarata and Blood Indices

Graph 2: Relation between Rakta sarata and Blood Indices

Graph 3: Relation between Mamsa sarata and Blood Indices

Graph 4: Relation between Meda sarata and Blood Indices

Graph 5: Relation between Asthi sarata and Blood Indices

Graph 6: Relation between Majja sarata and Blood Indices

Graph 7: Relation between Shukra sarata and Blood Indices

Graph 8: relation between Satwa sarata and Blood Indices

Correlation values of all dhatu sarata and blood indices

ANALYSIS	MCV	MCH	MCHC	CI
RASA	-0.12771	-0.10404	-0.07548	-0.10443
RAKTA	0.901664	0.95782	0.962077	0.957006
MAMSA	-0.03346	-0.10142	-0.15059	-0.10495
MEDA	0.256965	0.326494	0.379129	0.329308
ASTHI	-0.05315	-0.07478	-0.05242	-0.07158
MAJJA	0.03628	-0.06915	-0.13589	-0.07349
SHUKRA	0.149127	0.129397	0.120759	0.115151
SATWA	0.363478	0.370567	0.336984	0.377538

All four Blood Indices values were correlated with Rakta Sarata separately; higher correlation value represents strong and positive correlation.

Correlation values of Rakta sarata % Blood Indices

RAKTA	MCHC	0.962077
RAKTA	MCH	0.957821
RAKTA	CI	0.957006
RAKTA	MCV	0.900639

Findings

The study showed that all Dhatu sarata showed a random or non linear relation with blood indices except Rakta

sarata, which showed somewhat a linear relation; here statistical analysis also supported the linear relation. All four of the blood Indices' values were correlated to Rakta sarata, all showed positive and significant correlation; MCHC showed strongest positive correlation with highest correlation value, followed by MCH, CI, and MCV in decreasing order. Statistical analysis supports the hypothesis that there is relation between dhatu sarata and blood indices. "A relation between Rakta sarata and Blood indices was established". There is a positive correlation between the two variables i.e. if there is increase in the value of one variable there is increase in the other one. While rest of the other dhatu it showed a

random relationship. So, this can be stated that the higher the percentage of Rakta sarata, better is the value of Blood indices and vice versa.

DISCUSSION

Ayurveda has always emphasised to maintain a health of healthy individual and cure of sick person i.e. Dosha, Dhatu and Mala in healthy state or we can say in balanced state. To check their state Dashavidha Parikshan has been mentioned in our samhitas. Particularly for examination of Dhatus Sarata parikshan was developed, which is one of the most important examinations.² We need to add an objective parameter to Ayurvedic concepts to make them easier to understand. In Ayurveda; sarawan state of a dhatu represents good state of a dhatu, so we know that higher percentage of Rakta sarata defines good state of Rakta dhatu. The MCV explains about volume of each RBC; MCH states Hb % of each corpuscle; MCHC tells about Hb concentration, while CI gives the colour index per corpuscle. The MCV reflects the size of red blood cells. The MCH and MCHC reflect the haemoglobin content of red blood cells. The normal range of blood Indices states Normocytic, Normochromic RBCs i.e. the RBCs is having a Normal volume as well as normal haemoglobin percentage. The study showed that there was a positive correlation between Rakta sarata and blood Indices (MCV, MCH, MCHC and CI). The higher was the percentage of Rakta sarata, the better were the values of the four blood indices, where MCHC showed higher correlation. It can be suggested that when percentage of Rakta sarata is high the values of blood Indices are also good i.e. volume of each red blood corpuscle is within normal range, haemoglobinisation is also normal and concentration of Haemoglobin per corpuscle and ratio is also good. When the sarata percentage decreases the values of blood indices also decrease. The MCHC showed strongest positive correlation i.e. when Rakta sarata increases MCHC shows strongest positive rise, followed by MCH, CI, MCV. So, it can be stated that if there is increase in percentage of Rakta sarata; the value of Blood indices also increase.

CONCLUSION

Sarata parikshan is one of the most important examinations which give an idea about qualitative state of dhatu. Blood indices are one of modern science examination used to understand the volume of RBCs; Hb % and Hb concentration. Blood indices are used to understand the properties and characteristics of RBCs for detailed examination of Anaemia. The statistical analysis showed that 'there was a relation between Rakta sarata and Blood indices', it's a positive relation. The person having higher percentage of Rakta sarata possesses good values of blood indices. This can be stated that with increase in Rakta sarata percent value of the blood indices also increase. Highest correlation was found between Rakta sarata and MCHC. The MCHC showed the strongest positive correlation thus if there is any increase in Rakta sarata MCHC will show faster and higher increase in value where as MCV will show least. Other dhatu sarata did not show any correlation with any of the Blood indices. Thus, there was a strong and positive correlation between Rakta sarata and blood indices while no relation was found in other sarata and Blood indices.

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REFERENCES

1. Ambikadatta Shastri, Sushruta Samhita – I and II Chaukhamba Orientalia, Varanasi, (UP), India, 2nd, 2007. p. 56-64.
2. Brahmanand Tripathi, Charaka Samhita, Chaukhamba Orientale Varanasi (UP), India, 19th, 1999. p. 763-64.
3. Sujit K Choudhuri, Concise Medical Physiology, New Central Book Agency Private Ltd., II edition, Calcutta, India; p. 33-34.
4. L. Prakasam Reddy, Fundamental of Medical Physiology, Paras Medical Publisher, 5th edition, Hyderabad, New delhi; p. 279-80.
5. Dr Vijaya D Joshi, Dr Sadhana D Joshi, Practical Physiology, Vora Medical Publications, Mumbai; 2nd revised edition; 2007.
6. GK Pal, Pravati Pal, Textbook of Practical Physiology, Universities Press, 2nd Edition.
7. Dr Vasant Lad, Ayurveda The Science of self healing, Motilal Banarsidas publishers private Ltd. Delhi., First edition

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