DOSHAJ PRAKRITI OF AYURVEDA AND ITS CORRELATION WITH HEMATOLOGICAL PARAMETERS

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ABSTRACT

Background: *Ayurveda* is a more than 3,000-year-old medical system from India. *Ayurveda*, which translates from the Sanskrit words for "science or knowledge," combines the words "Ayur" (life) and "Veda" (science/Knowledge). So, we can say *Ayurveda* means "knowledge of life". According to this system an individual's basic constitution determines predisposition and prognosis to diseases as well as the therapy and life-style regime. *Ayurveda* describes seven broad *Prakriti* (Physical constitution). *Prakriti* is defined as the sum of physical, physiological, psychological traits of an individual which represents genotypes. **Objective:** In this article we have attempted to narrate concepts of *Prakriti* and its relation with hematological parameter (Hb%, TLC, DLC and ESR etc.) **Material and Method:** In this study 100 healthy individuals from age group of 18 to 40 years were screened for their *Prakriti* analysis. Correlation of *Prakriti* and hematological parameters (TLC, DLC, ESR, hemoglobin) was studied in this study. Here, we tried to found out whether there is any correlation between *Prakriti* and hematological parameters. **Discussion and Conclusion:** In this study Hemoglobin was highest in *Vata-kapha Prakriti* and lowest in *Vata-pitta Prakriti*. Total leucocyte count (TLC) was highest in *Pitta Prakriti* and lowest in *Vata-kapha Prakriti*, Erythrocyte sedimentation rate (ESR) was highest in *Vata Prakriti* and lowest in *Pitta-kapha Prakriti*.

1. INTRODUCTION

Ayurveda, the traditional medical system of India, considers holistic principles which emphasize on health promotion, disease prevention, and early diagnosis and treatment of diseases in highly personalized manner.[1] Every individual is unique having different body constitution.[2] Hence, the unique concept of Prakriti, based on theory of Tridosha, namely Vata, Pitta, and Kapha, has been described in Ayurveda that underpins all understanding of human physiology and treatment of disease in highly individualized manner.[3] The dictionary meaning of word 'Prakriti' is nature, character, and constitution, original or primary substance.[4] The word Prakriti is derived from 'Pra' and 'Kriti', here 'Pra' means origin or beginning and 'Kriti' means to create or to act. Prakriti characteristic mentioned in different textbooks of Ayurveda viz. Charaka Samhita[5], Sushruta Samhita[6], Ashtanga Samgrah[7], Ashtanga Hridaya[8], Bhava Prakasha[9], Sharangadhar Samhita[10], Harita Samhita[11] and Bhela Samhita.[12] According to there are seven types of Deha Prakriti that is Vataja Prakriti, Pittaja Prakriti, Kaphaja Prakriti, Vata Pitaja Prakriti, Pitta Kaphaja Prakriti, Vata Kaphaja Prakriti and Tridosaja/ Sama Prakriti. Prakriti is the sum total of physical, physiological and psychological characteristics of any individual and represents the genotype.[13] Knowledge of Prakriti can help in prevention and diagnosis of diseases, in determining the treatment guidelines and forecast future diseases.[14,15] It is decided by Dosha predominates at the time of conception, and reflects the Doshaja Prakriti of the individuals and can be manifested by Dosha specific characteristics. Prakriti is not only determined by Shukra & Shonita (genetically) but also influenced by various other factors such as Matur Ahara Vihara (maternal diet and lifestyle), Kala-Garbhashaya (season of conception) and panch mahabhuta vikara.[16] Acharya Charaka also explained some other extra uterine factors which influenced Prakriti of individuals such as, Racial/ Caste (Jati-Prasakta) Familial (Kula-Prasakta), Country or place (Desh-anupatinee), Natural change according to age (Vayo-nupatinee) Time period of life (Kala-nupatini) and individual specific character (Pratyatmaniyata).[17]

Vata is considered as an originator for the actions of *Kapha* (K) and *Pitta* (P). *Pitta* is generally responsible for metabolism, thermoregulation, pigmentation, and energy homeostasis whereas the anabolism function, growth and maintenance of structure are functions of *Kapha*. The recent advances in the genomics, personalized medicine, and *Ayurveda* have led several researches to explore relationship between *Prakriti* and various

biological parameters. Different researchers have suggested a link between an individual's *prakriti* with biochemical and genetic variables.[18-19-20-21-22] The present study was taken up to understand the relation between *Prakriti* of individuals and Hematological parameters. In this study *Tridoshaja Prakriti* of the individual was determined by the questionnaire, which was taken from CCRAS Manual of Prakriti Assessment.

2. MATERIAL AND METHODS

A total 100 healthy individual of age group 18-40 years were randomly selected for the study from Himalayiya Ayurvedic medical college and Hospital, Dehradun, Uttarakhand after getting written informed consent from the individual, and obtaining Ethical committee approval. These individuals were BAMS students and staff of college. The present study was conducted after getting the Ethical Committee approval from college.

❖ **Prakriti Analysis:** *Prakriti* analysis was done by the proforma of "CCRAS Manual of *Prakriti* Analysis". All the characteristics of *Vata, Pitta* and *Kapha* were assessed by *Darshan* (Inspection), *Sparshana* (Palpation) and *Prasana* (questionnaire). Parameters like height, weight were examined objectively. This questionnaire is designed in such a way that, each feature as described in *Samhitas* has been converted into a simple question/statement. Questionnaire contains 31 traits of *Vata*, 29 traits of *Pitta* and 32 traits of *Kapha.* Each trait had given equal mark. Total scoring was done manually and percentage of each *Vata, Pitta* and *Kapha Prakriti* were determined by using following formula-

$$\% \text{ of particular Dosa i.e. V, P or K} = \frac{\text{Number of manifested characteristics of particular } Dosha}{\text{Total number of manifested characteristics of particular } Dosha} \times 100$$

Determination of *Prakriti* was done by giving 100% to sum of all the *Prakriti* characteristics irrespective to the number of characteristics described in *Ayurveda* for the particular *Prakriti* type.[23]

❖ **Haematological parameter Analysis:** Hemoglobin, total red cell count (TRBC), total leukocyte count (TLC) with differential leukocyte count, (DLC [neutrophil, lymphocyte, monocyte, eosinophil, and basophil]), and Erythrocyte sedimentation rate (ESR) were done in department of Rog-Nidan, Himalayiya Ayurvedic medical college and Hospital, Dehradun. Sahli's method was used for the determination of hemoglobin.

Sahli's Hemoglobinometer

Procedure for Determination of Hb By Sahli's Method

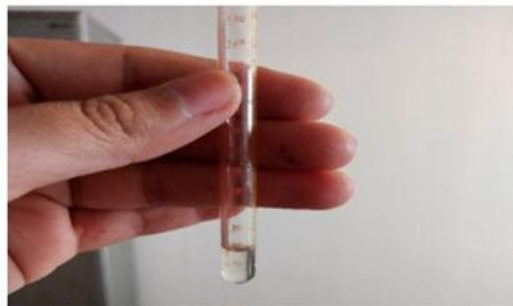Image 1. Sterilizing the area for collecting blood sample

Image 3. Hb tube with N/10 HCl up to 20%

Image 2. Collection of blood sample

Image 4. Taking blood in Hb pipette

Image 5. Transferring the blood into Hb tube.

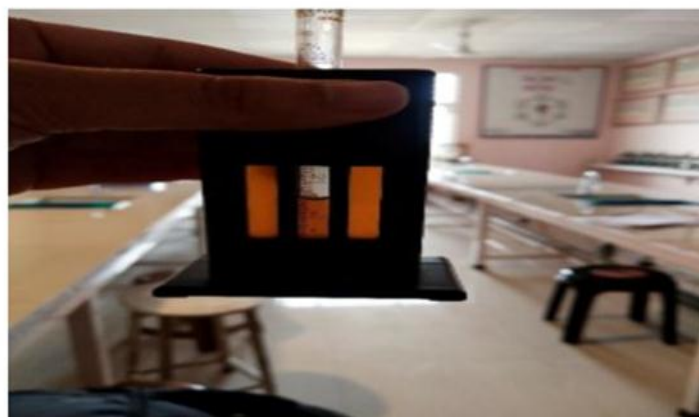Image 6. Leave it for 6-8 minutes and then adding distilled water drop by drop.

Image 7. Final result (color match with the standard color)

Other investigations like total red cell count (TRBC), total leukocyte count (TLC) with differential leukocyte count, (DLC [neutrophil, lymphocyte, monocyte, eosinophil, and basophil]), and Erythrocyte sedimentation rate (ESR) ware done by Automated Hematology Analyzer.

Statistical Analysis: The analysis of data was carried out using statistical software SPSS 16.0 version.

3. OBSERVATION AND RESULT

Out of 100 healthy individuals who were taken in the study, 4% of individuals have *Vata Prakriti*, 24% have *Pitta Prakriti*, 26% have *Kapha Prakriti*, 9% have *Vata-pitta Prakriti*, 4% have *Vata-kapha Prakriti*, 33% have *Pitta-Kapha Prakriti* and 0% have *Vata-pitta-kapha*

Prakriti (VPK). The correlation between *Prakriti* and hematological parameters was studied statistically.

❖ **Hemoglobin (Hb%):** Hemoglobin was highest in *Vata-kapha Prakriti* (13.10) than all other *Prakriti.* It was followed by *Pitta-kapha Prakriti* (12.77), *Pitta Prakriti* (12.32), *Vata Prakriti* (12.15) and *Kapha Prakriti* (12.07) respectively. Lowest Hb was observed in *Vata-pitta Prakriti* i.e. 11.58. Effect of *Vata-kapha Prakriti*, *Pitta-kapha Prakriti* and *Pitta Prakriti* is similar on Hb. Similarly, effect of *Kapha prakriti* and *Vata-pitta Prakriti* is similar on Hb.

❖ **Total leukocyte count (TLC):** The TLC was highest in *Pitta Prakriti* (8861.67) than all other *Prakriti.* It was followed by *Vata-pitta Prakriti* (8213.33), *Vata Prakriti* (8150.00), *Pitta kapha Prakriti* (7230.91) and *Kapha Prakriti* (7088.85) respectively. Lowest TLC was observed in *Vata-kapha Prakriti* i.e., 6050.00.

❖ **Lymphocytes (L):** Lymphocytes were highest in *Vata Prakriti* (30.95) than all other Prakriti. It was followed by *Vata-pitta Prakriti* (30.07), *Pitta-kapha Prakriti* (30.05), *Kapha Prakriti* (29.06) and *Vata-kapha Prakriti* (29.00) respectively. Lowest lymphocytes were observed in *Pitta Prakriti* i.e 26.68. Effect of *Kapha Prakriti, Vata-kapha Prakriti, Pitta-kapha Prakriti and Vata-Pitta Prakriti* is similar on lymphocytes.

❖ **Neutrophils (N):** Neutrophils were highest in *Vata Prakriti* (64.50) than all other *Prakriti*. It was followed by *Pitta Prakriti* (64.23), *Vata-kapha Prakriti* (64.00), *Kapha Prakriti* (63.18) and *Vata-pitta Prakriti* (62.86) respectively. Lowest neutrophils were observed in *Pitta-kapha Prakriti* i.e 62.25. Effect of *Kapha prakriti* and *Vata-pitta Prakriti* is similar on neutrophils.

❖ **Monocytes (M):** Monocytes were highest in *Pitta Prakriti* (4.10) than all other *Prakriti*. It was followed by *Pitta-kapha Prakriti* (3.56), *Vata-kapha Prakriti* (3.50), *Vata-pitta Prakriti* (3.38) and *Kapha Prakriti* (3.06) respectively. Lowest monocytes were observed in *Vata Prakriti* i.e 2.83.

❖ **Eosinophils (E):** Eosinophils were highest in *Kapha Prakriti* (3.28) than all other *Prakriti.* It was followed by *Pitta-kapha Prakriti* (3.13), *Vata-kapha Prakriti* (3.00), *Vata-pitta Prakriti* (2.93) and *Vata Prakriti* (2.43) respectively. Lowest eosinophils were observed in *Pitta Prakriti* i.e 2.28.

❖ **Erythrocyte sedimentation rate (ESR):** ESR was highest in *Vata Prakriti* (13.25) than all other *Prakriti.* It was followed by *Vata-pitta Prakriti* (12.56), *Pitta Prakriti* (12.25), *Vata-kapha Prakriti* (12.23) and *Kapha Prakriti* (12.17) respectively. Lowest ESR was

observed in *Pitta-kapha Prakriti* i.e 11.75. Effect of *V and VP prakriti* were statistically similar on ESR. Effect of *Kapha and PK prakriti* were statistically similar on ESR.

4. DISCUSSION

In *Ayurveda Prakriti* of an individual is considered to be fixed means *Prakriti* does not change throughout life. The present study was an effort to find reference range for Hematological parameters with reference to *Prakriti* if any. A total 100 healthy individual of age group 18-40 years were randomly selected for the study from Himalayiya Ayurvedic medical college and Hospital, Dehradun, Uttarakhand. In this study Hemoglobin was highest in *Vata-kapha Prakriti* followed by *Pitta-kapha Prakriti*, *Pitta Prakriti*, *Vata Prakriti* and *Kapha Prakriti*. TLC was highest in *Pitta Prakriti* followed by *Vata-pitta Prakriti*, *Vata Prakriti*, *Pitta kapha Prakriti* and *Kapha Prakriti*. Lowest TLC was observed in *Vata-kapha Prakriti*. Neutrophils were highest in *Vata Prakriti* followed by *Pitta Prakriti*, *Vata-kapha Prakriti*, *Kapha Prakriti* and *Vata-pitta Prakriti*. Lymphocytes were highest in *Vata Prakriti* followed by *Vata-pitta Prakriti*, *Pitta-kapha Prakriti*, *Kapha Prakriti* and *Vata-kapha Prakriti*. Monocytes were highest in *Pitta Prakriti* followed by *Pitta-kapha Prakriti*, *Vata-kapha Prakriti*, *Vata-pitta Prakriti* and *Kapha Prakriti*. Eosinophils were highest in *Kapha Prakriti* followed by *Pitta-kapha Prakriti*, *Vata-kapha Prakriti*, *Vata-pitta Prakriti* and *Vata Prakriti* respectively. ESR was highest in *Vata Prakriti* followed by *Vata-pitta Prakriti*, *Pitta Prakriti*, *Vata-kapha Prakriti* and *Kapha Prakriti* respectively. Other studies reveal that haematological parameter like hemoglobin, PCV (packed cell volume), and RBC (red blood corpuscles) count significantly on the higher side of normal range in *Pitta Prakriti* in comparison to *Vata* and/or *Kapha* and *Pitta, Kapha*, and *Vata Prakriti* individuals are having maximum, moderate and minimum Haemoglobin %.[24-25] *Acharyas* mentioned that, in *Pitta Prakriti* person factors related to *Agni, Dhathuposhana* are superior within physiological limits compared to *Kapha* and *Vata prakriti* persons.[26] Thus, the process of digestion, metabolism and absorption of ingested materials are also ideal in the individuals belonged to this group. *Pitta* has close relation with *Raktha Dhatu* and nourishes it. *Raktha* is formed due to the action *Ranjaka pitta* on *Rasa dhatu* in the *Yakrit* this process has close relation with hemoglobin synthesis. One another study has not shown significant values, on intergroup comparison, of hemoglobin (Hb), TLC, DLC, TRBC, and PLT count in relation to prakriti of infants. But results showed variation in mean values of haematological parameters as per *Prakriti*.[27]

5. CONCLUSION

In this study an attempt has been made to find out a correlation between *Doshaj Prakriti* and Hb, TLC, DLC and ESR. Hemoglobin was highest in *Vata-kapha Prakriti.* TLC was highest in *Pitta Prakriti.* Neutrophils were highest in *Vata Prakriti.* Lymphocytes were highest in *Vata Prakriti.* Monocytes were highest in *Pitta Prakriti.* Eosinophils were highest in *Kapha Prakriti.* ESR was highest in *Vata Prakriti.* However, these findings need to be confirmed in a larger sample size.

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