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ABO Blood Type and Personality Traits in Healthy Indian Subjects

Balagurusamy. K¹, Subash Chandran. G², Pitchiah Kumar. M³

¹ Principal, Velumailu Siddha Medical College, Sriperumbudur, Kancheepuram District

² Government Siddha Medical College, Palayamkottai, Tirunelveli District

³ State Licensing Authority (I. M),Chennai.

1. Introduction

Personality traits influence many aspects of normal and pathological behaviors. Temperament traits, the most basic part of personality, have been correlated with neurotransmitter systems and are genetically controlled. In the last decade, a large number of studies have focused on the detection of genetic variants associated with specific temperament traits, and numerous findings have been reported. Although a consensus has not been reached, many genes show reproducible associations with personality traits, including the current consensus that personality is approximately 50% heritable. ABO blood group type is genetically predetermined and easily identified, which has led to its use as a biological marker to assess the influence of genetic factors on personality in various ethnic groups. Although researchers sought to uncover blood type-related personality factors prior to 2000, the results were inconsistent. Since 2010, a few published studies have examined possible associations between blood group and personality traits using the NEO Personality Inventory to assess the Big Five personality traits, which represent five broad dimensions of personality; however, they failed to find any associations. In addition, a more recent study found no significant association between ABO blood groups and personality traits .

In the Siddha system of medicine, man is viewed as as a microcosm and the universe as a macrocosm. In other words, man is a miniature universe in himself. The whole universe is inturn believed to be constituted of five primordial elements or panchabootham viz.Earth, Water, Fire,Air and space and so is man. The Pancheekaranam theory (Five fold combination) of Siddha

science explains the origin and formation of these five elements in the formation of every substance both in the universe and in the humans.

According to Panchekaranam theory, each of these five elements is said to possess two properties viz. subtle and gross. These elements always acts in mutual co-ordination and can never act independently. The various proportions in which they combine gives rise to different substances. Thus, this theory proposes that 96 basic factors exist, which is the basic concept underlying this holistic medicine.

Vatha	<ul style="list-style-type: none"> • Slim body, • Thick eyebrows • Round and slightly pale eyes • At times staggering speech with agitation of mind
Pitha	<ul style="list-style-type: none"> • The marrow in the bones and the muscles in the joints will be comparitively less • Eye brows will be slim • The person cannot endure hunger, thirst, anger, heat and fear. • Bold • Might
Kapha	<ul style="list-style-type: none"> • Broad forehead • Broad and elevated chest • Power of memory strength

Blood Type and Its Major Traits of Personality

Blood type	Personality
A	<ul style="list-style-type: none"> • Cautious about new actions, also pursue stability, but sometimes obsessed and burst into a rage. • Take a brave action in an emergency. • Prudent judgement, although draw the clear line. • Strongly suppressive outside vs violent inside. • Recover slowly after got hurt. • Concentrate on one at a time.
B	<ul style="list-style-type: none"> • Look for a life with much freedom. • Particularly dislike rules or formulas. • Do not hesitate to take new actions. • Tend to be absorbed in strongly interested things. • Multitasking and go overboard. • Quick and flexible judgements. • Feelings sway, moody. • Frankly express anger or sorrow.
O	<ul style="list-style-type: none"> • Purpose oriented. • Head straight for a target. • Great achievement power • Give up early if no good.

	<ul style="list-style-type: none"> • Articulate and logical, but somewhat straight. • Emotions are usually stable and do not linger. • Deeply moved. Lose heart when cornered.
AB	<ul style="list-style-type: none"> • Good reflexes, business-like efficiency. • Quick and easy understanding. • Duality with a calm, cool stable • Able to do everything accurately • Smiling and soft, but keep a certain distance from others.

Disease and ABO grouping

SL.No	Disease	Blood group
1.	Asthma	O ^{+ve}
2.	Osteoporosis in post menopausal woman	AB
3.	Rheumatoid arthritis	Not relevant
4.	Diabetes mellitus	Not relevant
5.	Peptic Ulcer	O

2. Aim & Objectives of the study

- In *Pitta Prakriti* individual's hematological parameters like Hemoglobin (Hb%), Packed cell volume (PCV), and Red blood corpuscles (RBC) count are significantly on the higher side of normal range in comparison to *Vata* and *Kapha Prakriti*.
- Higher level of cluster of differentiation (CD) 14 markers in *Pitta Prakriti*, CD25 and CD56 in *Kapha Prakriti* individuals.
- *Vata Prakriti* individuals have “A” blood group, maximum *Pitta Prakriti* individuals have “O” blood group while maximum *Kapha Prakriti* individuals have “B” blood group and genotype correlation shows that HLA DRB1 (human leukocyte antigen, dimer beta chain) gene polymorphism, CYP2C19 (Cytochrome P450 2C19) gene polymorphism and PGM1 (*Phosphoglucomutase 1*) polymorphism have scientific variations with the human *Prakriti* concept.

3. Materials and Methods

Ayurvedic texts, used in this study, are Charak Samhita, Sushruta Samhita, Ashtanga Sangraha, Ashtanga Hridaya and research works conducted at various institutes etc. Search was undertaken in MEDLINE (www. pubmed. com) or the PubMed database, using keywords such as Prakriti, human constitution, physical Constitution, Dosha, Hematological parameters, blood groups, body mass index and genetic study. The search was limited to only English literature including those studies which were published from 2010 to 2016. A possible correlation has been made between collected information and has been presented in a systematic way.

4. Observation and Results

Based on the critical review of classical and recent information, the following observations have been found pertinent to this study.

4.1 Concept of Prakriti (Human Constitution)

Prakriti (human constitution) comprises of both “physical constitution” as well as “psychological constitution”. Prakrita Dosha quanta are present in a person since birth till death without changing. If changed, death is definite. Prakriti type can be represented in terms of their body structure, mental makeup, tolerance to various types of food & environment and susceptibility to various diseases including the prognosis. Prakriti, also establishes the knowledge regarding the effects of various diet, lifestyle, environment, and treatment on different Prakriti individuals. Prakriti assessment can be done by a questionnaire prepared on the basis of Prakriti characteristics mentioned in different textbooks of Ayurveda. Traditional Ayurvedic method of Prakriti determination assessed by Trividha pariksha of Ayurveda as Darshan (visual assessment), Sparshana (tactile assessment) and Prashana (interrogative assessment). Morphological features can be assessed by visual assessment (Darshan Pariksha) such as color of skin, color of hair, consistency of hair and bony tissue proportions etc. Tactile assessment (Sparshana pariksha) for dryness/oiliness of skin, body temperature and pulse (Nadi) pariksha. Physical findings can be assessed by interrogation such as physical strength, endurance, hunger, sleep and dream patterns, bowel habit, memory and anger response. Knowledge of Prakriti can guide the parents for prevention of expected disorders and deciding to choose carrier at a very early age.

4.2 Prakriti (Human constitution) and Hematological Parameters

Common risk factor for cardiovascular diseases like triglycerides such as Total Cholesterol (TG), VLDL (Very Low Density Lipid), LDL (Low Density Lipid), LDL/HDL (low density lipid/ high density lipid) ratio was higher in Kapha Prakriti individuals. Kaphaj Prakriti persons had lower levels of High Density Lipid (HDL) while compared to Vata Prakriti persons. The levels of serum uric acid, SGPT (Serum Glutamic Pyruvic Transaminase), SGOT (Serum GlutamicOxaloacetic Transaminase) and serum Zinc were also elevated in Kapha Prakriti individuals. Level of serum Prolactin and Prothrombin time were high in Vata Prakriti individuals in comparison to Kapha and Pitta Prakriti individuals. Other hematological parameters 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^{32, 33}. In another study Kapha-Pittaja Prakriti were found more prone to develop hyperlipidaemia and associated risks. Therefore, they need effective life style modifications to lower the lipid level in Kapha-Pittaja Prakriti. Blood sugar level, HbA1c% (hemoglobin A1c test), total serum insulin level, HOMA-IR, (Homeostatic Model Assessment of Insulin Resistance) level and total cholesterol level have higher value in Kaphaja Prakriti individuals while decrease in LDL (low density lipid), triglycerides and increase in HDL (low density lipid) was obtained in Pitta and Kapha Prakriti individuals

4.3 Prakriti (Human Constitution) and BMI

The BMI or Quetelet index is a value derived from the mass (weight) and height of an individual. The BMI is defined as the body mass divided by the square of the body height, and is universally expressed in units of kilograms/meters². BMI can be helpful in deciding and also for the conformation of the dominant Prakriti in the individual. BMI (body mass index) can be broadly classified into three groups like BMI less than 20 (low), in between 20 to 25 (moderate) and more than 25 (high). In one study maximum cases of Vata Prakriti (71%) have less than 20 BMI followed by Pitta Prakriti, (19%) and Kapha (10%) Prakriti respectively. The moderate BMI (20-25) was found more in Kapha Prakriti individuals (47%) followed by Vata Prakriti (32%) and Pitta Prakriti (21%), respectively. BMI more than 25 were mainly found in Kapha Prakriti individuals (79%) followed by Vata Prakriti, (11%) and Pitta Prakriti, (44%) respectively³⁶. Anthropometry can be helpful in deciding and for the conformation of the dominant Prakriti in the in children. Vata Prakriti children are Krisha Sharira (lean and thin) or Alpasharira (short stature) and will have lower weight, CHL (Crown Heel Length) etc.; while Kapha Prakriti or Pitta-Kapha Prakriti infants are Sthulanga (stout body built) with better weight and CHL (crown heel length) as well as Mahalalata i.e. higher head circumference and Prithu Peena Vaksha (big and elevated chest).

4.4 Prakriti (Human Constitution) and Blood Groups

The ABO system was first discovered by Landsteiner and Weiner and it comprises four type blood types like A, B, AB and O blood groups³⁸. In a study incidence of A+ blood group was more in Kapha Prakriti individuals (23.3%) followed by Vata Prakriti (20.4%) and Pitta Prakriti (16.7%), respectively. Prevalence of B+ blood group was higher in Pitta Prakriti (29%) followed by Vata Prakriti (28.2%) and Kapha Prakriti individuals (25.6%) respectively. The allocation of O+ blood group was more among Pitta Prakriti (41.3%) followed by Vata Prakriti (39.3%) and Kapha Prakriti individuals (35.2%). The distribution of AB+ blood group was more among Kapha Prakriti individuals (10%) followed by Pitta Prakriti (8.0%) and Vata Prakriti individuals (7.1%), respectively. Rh factor has no significant distribution of among Prakriti³⁹. In another study maximum incidence of Vata Prakriti in A blood group, maximum occurrence of Pitta Prakriti in O blood group and maximum occurrence of Kapha Prakriti in B blood group is seen. Maximum occurrence of Vata-Kapha Prakriti in AB blood group and maximum occurrence of Pitta Kapha Prakriti was founded in O blood group.

5. Discussion

The practice of Ayurveda, the traditional medicine of India, is based on the concept of three major constitutional types (Vata, Pitta and Kapha) defined as “Prakriti”. In Ayurveda, Prakriti determination is very essential for diagnostics, management, and prognosis of a disease. Prakriti also plays a very important role in prevention of diseases and Pathyapathya ahara and vihara of life. Method of Prakriti determination includes pulse detection, development of questionnaires, software such as AyuSoft⁴⁹ (especially for adult Prakriti) and PRSIPA (especially for children Prakriti) ⁵⁰. Determining the Prakriti of a newborn can lead to a healthier life for an individual. For example, if we know children have Kapha Prakriti then from the Balyavastha (Childhood period) he/she should be encouraged to participate in sports and physical activity. Because Kapha Prakriti individuals have a natural tendency to reduce movement and if involved in sports

from childhood, it will lead to a better life and will prevent from most of the chronic diseases such as obesity, diabetes and cardiovascular diseases⁵¹. After research many parameters were developed which help in confirming the Prakriti such as hematological parameters, BMI, anthropometrics parameters, blood groups and genetic parameters. Hematological parameters like Hemoglobin, PCV, and RBC count significantly on the higher side of normal range in Pitta Prakriti in comparison to Vata and Kapha Prakriti. Serum Prolactin and Prothrombin time were high in Vata Prakriti in comparison to Kapha and Pitta Prakriti. Kapha Prakriti individuals have better immune response than Vata Prakriti and Pitta Prakriti individuals and Pitta Prakriti individuals have better immune response than Vata Prakriti because higher level of CD14 markers in Pitta Prakriti and CD25 and CD56 in Kapha Prakriti, individuals⁵² CD (cluster of differentiation) is a human gene that is a component of the innate immune system. Many cross sectional study related to blood group shows maximum Vata Prakriti individuals have “A” blood group, maximum Pitta Prakriti individuals have “O” blood group while maximum Kapha Prakriti individuals have “B” blood group. In relation to BMI it is found that Vata Prakriti individuals have BMI less than 20 and Kapha Prakriti individuals have more than 25. Many researchers work on Prakriti and phenotype-genotype correlation showing that Human leukocyte antigen (HLA) DRB1 gene polymorphism, CYP2C19 polymorphism and PGM1 polymorphism have systematic variations with the human Prakriti concept.

6. Conclusion

Prakriti (body constitution) is an important concept of Ayurveda which is decided at the time of conception. It shows differences in physical, physiological and psychological characteristics of an individual. Prakriti is important in preventive and curative aspects. Prakriti of an individual has strong relation to Hematological parameters (blood groups, complete blood count, lipid profile, Liver function test, BMI, Anthropometry, Human Leukocyte Antigen (HLA) DRB1, CYP2C19 (Cytochrome P450 2C19) polymorphism and PGM1 polymorphism. These parameters can help in confirmation of Prakriti which is decided by Prakriti characteristics based questionnaires as described in Ayurveda. The importance of each individual's variations in health and disease is an important basic principle rightly described hundreds of years ago as ‘every individual is different from another and hence should be considered as a different entity; as many variations are there in the Universe.

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