The Role of Blood Lipid Parameters in the Formation of Different Temperaments

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Abstract

Background: According to Canon, illness could be without any established disease and without any manifested changes in measurable parameters. Therefore, it is possible to assume Hypo/hyperlipidemia as an illness.

Objectives: The aim of this study determinant role of blood lipid parameters (Hypo/hyperlipidemia normal limits) how formation temperament profiles at different persons. Methods: this cross-sectional study performed on 400 personality of either gender with range of age 20 to 40 years. The participants’ temperament was determined using questionnaire. Measurement was carried out by blood cell counter System KX21N and auto-analyzer Erba XL 600 using Pars Azmoon Company’s Quantitative Detection Kit. Software SPSS22 used for data analysis.

Results: There was a statistically significant difference in cholesterol (p=0.007) and triglycerides (p=0.004) of females with warmness-wetness and warmness-dryness. The highest average values of cholesterol as well as the lowest average value of HDL-C were in males with coldness-wetness Mizaj. The highest mean of triglycerides was in males with warmness-wetness. Those who sorted into dryness group have an average triglycerides and cholesterol concentration lower and HDL-C, lipase concentration higher than wetness individuals. There was a negative correlation between lipase (r=- 0.25, p=0.001), triglycerides (r=-0.18, p=0.047).

Conclusion: The wetness Mizaj could be a predictable Mizaj of prone to hyperlipidemia.

Keywords: Mizaj (Temperaments); blood lipid parameters; Persian traditional medicine

Introduction

The blood constituents profile even in normal limits varies according to different factors such as races, gender, and in the same person under various conditions. This profile is based on biochemical reactions which affect and are also affected by the changes in the body and impart a certain Mizaj (temperament) to the body as well [1]. In the Canon, Avicenna states “Mizaj” is that quality which results from the mutual interaction and impression of the four contrary primary qualities, namely heat, cold, moisture, dryness residing within the imponderable) elements [2]. In Persian traditional medicine, Mizaj have divided into nine categories including medium and four simple Mizajes warm, cold, moist, and dry and four combined Mizajes warm and moist, warm and dry, cold and moist, and dry [3]. The normal population Mizaj,
which is basically the upper and lower limits of normal range, is the narrowest of Mizaj [4]. The imbalance in body Mizaj and humors is the trigger for increasing susceptibility to illness or leads to the onset of disease condition [5,6]. Humors are the soluble substances produced from food and drink by the digestive stages, including blood, phlegm, yellow bile, and black bile. Thus, humors are referring to classes of biochemical compounds in the human body. Based on Persian traditional medicine, the various digestive processes, in order of the food materials passageway, includes a certain amount of digestion during the act of mastication, true digestion in the stomach by reason of the heat of the enveloping members, yielding "chyle", the digestive function of the liver, the vessels digestion, and finally, the tissues bath [7,8]. The metabolic syndrome is a cluster of conditions includes obesity, hyperglycemia, dyslipidemia, and hypertension. Component features include insulin resistance, fasting hyperglycemia, raised blood pressure, raised triglycerides, low HDL-cholesterol concentrations, and obesity (in particular, abdominal obesity). The presence of these clinical conditions is associated with increased risk of cardiovascular disease and of developing diabetes [9,10]. The discussion about a healthy person could be focused on normal temperament and element composition of the blood According to Canon, illness could be without any established disease and without any manifested changes in measurable parameters and result from simple disturbance of temperament without the involvement of any humors. Ill used for conditions which have not been diagnosed, and yet may prove? [1, 11-13]. Therefore, it is possible to assume metabolic syndrome as an illness. Now, the question is, does the study of Mizaj and humor in relation to the lipid serum parameters arrives us at early signs of illness, diagnose, and treat? The aim of this study is try to answer this question if the lipid serum, within normal limits, related to metabolic syndrome, differs in persons with various normal temperament profiles. With the results of this study, the potential for developing blood lipid parameters in virtue of Mizaj type could be predictable.

Materials and Methods

The QUMS (Qazvin University of Medical Sciences) committee approved our study (Ethical Code: IR.QUMS.REC.1396.82). A descriptive study performed on 400 healthy subjects of either sex with ranging in age from 20 to 40 years. For participation in the study, the adequate information delivered to the volunteers by written consent form. Demographic forms were full filled. Exclusion criteria included: obesity, diabetes, cardiovascular disease, smoking, alcohol ingestion and vegetarian. The participants’ Mizaj was determined using questionnaire that traditional medicine researchers of Shahed University of medical science had previously found its satisfactory reliability and validity. All participants were asked to fast for 8 to 12 hours before blood taking. Venous whole blood samples were collected using anticoagulant ethylene diamine tetra acetic acid (EDTA) for analysis of platelets and without the use of anticoagulants in order to test the serum constituents. Platelets were immediately measured with blood cell counter Sysmex KX21N (Sysmex Corporation, Kobe, Japan). Serum obtained by centrifugation (150 g for 5 min) of 3 ml coagulated whole blood. Measurement of biochemical analytic triglycerides, cholesterol, HDL-C, LDL-C, lipase was performed using the Pars Azmoon Company’s Quantitative Detection Kit (Iran) and by auto-analyzer Erba XL 600 (Mannheim, Germany).

Statistical Analysis

Software of SPSS22 (SPSS, Chicago, IL, USA) was used for data analysis. The obtained data were analyzed by statistical tests of means ± SD, ANOVA, and independent samples t-test and Pearson correlation coefficient. A p-value of <0.05 was the chosen significant level.

Results

Westudied four hundred volunteers with a mean age of 28.7±7.6 (range 20-40) years. The subjects were 177 males (44.2%) and 223 females (55.8%). Regardless of the gender, the percentage of the participants individuals, which falls on five sectors of combined mizajes, included: coldness-wetness, coldness-dryness, warmness-wetness, and warmness-dryness were 21.75%, 10.75%, 22.75%, 11.5% respectively. In addition, the total estimated frequencies of four simple mizajes were coldness 32.5%, warmness 34.25%, wetness 44.5% and dryness 22.25%. The rest of these sectors are medium mizaj with frequency of 33.25% in the totality of subjects. The frequencies of warmness-wetness in males and coldness-wetness in females were more common among different combined mizajes. The observed analytic values with typical reference intervals or at recommended normal cut-off points in adults have been included in this study. Lowest or highest values was considered an outlier and therefore omitted from all further analyses. Analysis of blood constituents levels of triglycerides, cholesterol, HDL-C, LDL-C, lipase and platelet in different groups have been shown in tables 1 to 5. In general, the outcome of the comparison study of analytic, by gender, displayed that HDL-C and platelet value averages were higher in women than in men, which only the latter was significant (p=0.004). The mean of four others including triglycerides, cholesterol was higher in men than women but not statistically significant (p>0.05). Pair wise comparisons among combined mizajes by gender showed that a statistically significant difference exists in HDL (p=0.007) and triglycerides (p=0.004) of females with warmness-wetness and warmness-dryness. In addition, in women with coldness-wetness to coldness-dryness Mizaj was significantly more mean values of HDL-C (p=0.04) and lipase (p=0.02). The results showed that the highest average values of HDL-C (489±4.1) and cholesterol (183.6±32.1 mg/dl) as well as the lowest average value of HDL-C (45±8.1 mg/dl) were in males with coldness-wetness Mizaj (Tables 1-5). In addition, the lowest average values of triglycerides (67.6±21.5 mg/dl) and cholesterol (162.6±27.3 mg/dl) found in females with warmness - dryness mizaj. Besides, the highest mean of triglycerides (101.3±37.6 mg/dl) was in males with warmness-wetness. When two opposite simple Mizajes in total subjects are compared, there are a statistically significant difference between dryness and wetness Mizajes for triglycerides (p=0.001), cholesterol (p=0.02), HDL-C (p=0.02), lipase (p=0.01) and amylase (p=0.03). Those who sorted into dryness group have

an average triglycerides and cholesterol concentration lower and HDL-C, lipase concentration higher than wetness individuals. In general, simple Mizajes with coldness or wetness have higher mean amount of triglycerides, cholesterol, and LDL-C. Correlation analysis revealed no association between amylase and FBS or lipids (p>0.05) except for HDL-C (r=0.144, p=0.026). There was a negative correlation between lipase and triglycerides (r=-0.18, p=0.047), and no association with cholesterol (r=-0.044, p=0.541), LDL-C (r=0.045, p=0.472), and HDL-C (r=0.045, p = 0.52). Regarding LDL-C and platelet profile, although, the results of mizaj groups had not statistically significant difference in LDL-C and platelet, but the highest mean of those was observed in coldness-wetness men and coldness-dryness women, respectively.

Table 1: Comparison of lipids levels between temperament indices.

<table>
<thead>
<tr>
<th>Sex</th>
<th>Indices</th>
<th>Triglycerides Levels (mg/dl)</th>
<th>Cholesterol Levels (mg/dl)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Min</td>
<td>Max</td>
</tr>
<tr>
<td>Male</td>
<td>Coldness</td>
<td>Wetness</td>
<td>36</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dryness</td>
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</tr>
<tr>
<td></td>
<td>Warmness</td>
<td>Wetness</td>
<td>42</td>
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<tr>
<td></td>
<td></td>
<td>Dryness</td>
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<tr>
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<td>145</td>
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<tr>
<td></td>
<td>Total</td>
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<td>149</td>
</tr>
<tr>
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<td>Wetness</td>
<td>33</td>
</tr>
<tr>
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<td></td>
<td>Dryness</td>
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<tr>
<td></td>
<td>Warmness</td>
<td>Wetness</td>
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<tr>
<td></td>
<td></td>
<td>Dryness</td>
<td>42</td>
</tr>
<tr>
<td></td>
<td>Medium</td>
<td>37</td>
<td>146</td>
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<tr>
<td></td>
<td>Total</td>
<td>33</td>
<td>148</td>
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Table 2: Comparison of lipoproteins levels between temperament indices.

<table>
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<tr>
<th>Sex</th>
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<th>HDL-C levels (mg/dl)</th>
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<tr>
<td></td>
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<td>Max</td>
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</tr>
<tr>
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<td></td>
<td>Dryness</td>
<td>36</td>
</tr>
<tr>
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<td>Coldness</td>
<td>Wetness</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>Dryness</td>
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<tr>
<td></td>
<td>Warmness</td>
<td>Wetness</td>
<td>59</td>
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<td></td>
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<td>Warmness</td>
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<td>69</td>
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<td></td>
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<tr>
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<td>Total</td>
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<td>100</td>
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</table>

Table 3.
Discussion

The most of studied subjects fall into wetness mizaj. A criterion of this mizaj is muscular or fatty that the latter in combined with coldness temperament may progress to obesity which is considered to be a feature of the metabolic syndrome. In addition, in wetness subjects have been found, on the one hand, a significantly higher mean of cholesterol and triglycerides, and, on the other hand, lesser of HDL-C than dryness individuals. Moreover, the highest average values of cholesterol and LDL-C, as well as the lowest average value of HDL-C were in males with coldness-wetness mizaj. Considering that the abnormal of those analytic (i.e., increased triglycerides, cholesterol, LDL-C and decreased HDL-C) in a defining level are criteria for clinical identification of metabolic syndrome. One could speculate that men with wetness mizaj especially in combined with coldness may be prone to this condition. Besides, visceral fat accumulation leading to increased triglycerides, low HDL-C, contributes to the individuals meeting a diagnosis of blood lipid parameters. In traditional medicine, the fat and the oil are coldness and moist constituents of the body. According to Avicenna, in chapter of urinalysis of The Canon of medicine, In contrast, the association of warmness-dryness mizaj in females with the lowest average values of triglycerides, cholesterol and LDL-C and increased HDL-C indicates that the dryness, leading to skinny due to reduction in body fat or muscles, when combined with warmness, might be associated with a decreased risk of metabolic syndrome. Given that individuals with warmness-mizaj are muscular, it is perhaps relevant that, diminishing the serum levels of lipids could be attributed at least in part to better metabolized in mitochondria’s muscles. Interestingly, we observed that the levels of essential digestive enzymes amylase higher in dryness than wetness mizajes inversely with lipids and HDL-C. Total Serum amylase contains an approximately equal proportion of salivary and pancreatic is enzymes; therefore it have endocrine functions as well; its physiological secretory function could be either digestive or non-digestive. We found that lipase have a strong and weak negative correlation with triglycerides, respectively, but no correlation with cholesterol or LDL-C and HDL-C. These observations led us to speculate that lipase could be involved in the metabolisms of lipids. Lower mean serum lipase levels than healthy subjects. Nevertheless, our results were unlike to those reported by Adedeji et al. in diabetes mellitus which lipase activity is elevated at increased concentrations of glucose and lipids. Given that, there are various lipases, the role that each of them plays in development of metabolic syndrome is a controversial issue. Based on the Miyashita and Shirai study, lipoprotein lipase (LPL) mass is low in type 2 diabetes mellitus and is inversely proportional to the amount of serum triglyceride and directly proportional to the HDL-C, consistent with our results. Also, there was a significant lower LPL in individuals with metabolic syndrome and coronary atherosclerosis. However, unlike LPL, endothelial lipase (EL) that effectively hydrolyzes HDL phospholipids is associated with lower HDL-C and might play a role in progress of atherosclerosis in individuals with overweight and metabolic syndrome. Inhibition or decreased synthesis of lipoprotein or hepatic lipases increases plasma triglyceride. In addition, malnutrition of the fat and hyperglycemia have been observed in pancreatic lipase deficiency. Besides, in Persian traditional medicine the existence of oily substance in blood, the diabetes or anorexia could be due to abnormal digestion, raw humors or dominant phlegmatic humor. Furthermore, the higher of lipids levels in wetness mizajes might be attributable in part to less observed normal activity of amylase and lipase than dryness. Our results showed that a mildly high LDL-C and platelets in men with coldness-wetness Mizaj. Diet-induced hyperlipidemia can Potently activates human platelets via oxidized LDLs. Oxidized HDLs, on the contrary, can inhibit platelet aggregation. Thus, it has been reported that platelet hyperreactivity in response to elevated levels of oxidized LDL contribute to the cogenesis, and the metabolic syndrome.

Conclusion

People with different normal Mizajes indicate different mean value of some blood and serum parameters, within normal limits, related to blood lipid disorder. As expected, the wetness Mizaj individuals have higher mean normal levels of lipids, especially when combined with coldness Mizaj in men. Thus, this could be a predictable Mizaj of prone to blood lipid disorder. Inaddition, it appears that blood lipid disorder role of lipase, which is less value in wetness than dryness Mizajes, influences on progress to blood lipid disorder.

<table>
<thead>
<tr>
<th></th>
<th>Coldness</th>
<th>Wetness</th>
<th>Dryness</th>
<th>Warmness</th>
<th>Medium</th>
<th>Total</th>
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<tr>
<td>Female</td>
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<td>392</td>
<td>222.5</td>
<td>54.2</td>
<td>0.23</td>
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<td></td>
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<td>300</td>
<td>237.7</td>
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<td>228</td>
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References


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