Determination of some visfatin hormone level and lipid profile in some breast cancer patients in Samarra city

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Abstract:
Our study aimed to estimate visfatin hormone levels and lipid profile levels in some patients. The study group included 20 women with breast cancer and a control group of 10 healthy women. The hormonal and biochemical assays include visfatin hormone, total cholesterol (TC), TGS, LDL-C, HDL-C, and VLDL-C. The results showed a significant increase at (P≥0.05) in visfatin, TC, TGS, LDL-C, and VLDL-C in breast cancer patients compared to the control group, while HDL-C didn’t show any significant difference between both groups.

Key words: visfatin, breast cancer, lipid profile.


Introduction:
Breast cancer begins when cells in the breast growth of control, and these tumor cells that can be seen on an X-ray or feels as lump. The tumor is cancerous when the cell grows into the surrounding when tissues and spread to another part of the body (¹). Breast cancer also defined as malignant tumors start from epithelial cells of glandular milk ducts of the breast (²). Breast cancer is the most common cancers that infect women worldwide (³). The incidence rate of breast cancer about 29% of all women cancers (⁴). The researcher explains the fast prevalence of this disease to changes in lifestyle, avoidance of some women of breastfeeding and genetics factors furthermore bad or poor dietary (⁵, ²²). Hormones play an important role in breast cancer especially estrogen hormone which effects in growth and development of breast lobes and milk ducts (⁶). Visfatin in protein has a molecular weight (52) KDa (⁷). Visfatin is inflammatory cytokines that play the main role in infected inflammatory diseases (⁸). The inflammation increases the synthesis of visfatin (⁹) , (¹⁰) reported that visfatin related breast cancer, also (¹¹) showed that visfatin increase tumors in breast cancer due to the risk of this disease to the health of women and resulting in human losses we conducted this study.

Materials and methods:
Samples:
The samples were collected from tumor unit in general Samarra hospital in Samarra city. From November 2018 to January 2019. Breast cancer patients number was 20 women who diagnosis with this disease as a study group, and 10 healthy women as control group. Ages of healthy patients were between (41-70) years.

Blood collection:
5 ml of blood was collected and transported to the disposable tube. The samples left for 15 min at room temperature, then centrifuged at 5000 rpm for 10 min. The serum was transported to test tubes until examination. Visfatin
hormone concentration was measured via enzyme-linked immune sorbent assay (ELISA) by using the commercial kit (ELISA kit, Human, Shanghai, China) and the procedure was followed as given in the kit catalog. Lipid profile (Cholesterol, Triglycerides, High-density lipoprotein- cholesterol (HDL-C)) was quantified by followed the given procedure with the kit (bio labs, France), Low-density lipoprotein- cholesterol (LDL-C) estimated by the equation: 
\[ \text{LDL-C} = \text{Chol-HDL-C-VLDL-C} \]
Very low-density lipoprotein- cholesterol (VLDL-C) estimation by the following equation:
\[ \text{VLDL-C} = \frac{\text{TG}}{5} \]

Statistical analysis:
Values expressed as mean ± SD. data analyzed done by using and analysis of variance (ANOVA).

Results:
The results show in the table (1-1) a significant increase in visfatin, chol, TG, LDL-C, VLDL-C concentrations in patients compared with control while HDL-C shows a significant decrease in patients compared with control.

Table (1-1):Visfatin and lipid profile levels between patients and control.

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Patient</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visfatin</td>
<td>3.653±0.927</td>
<td>2.503±0.788</td>
</tr>
<tr>
<td>Cholesterol</td>
<td>154.088±31.911</td>
<td>147.466±24.497</td>
</tr>
<tr>
<td>TG</td>
<td>104.909±13.915</td>
<td>79.046±16.277</td>
</tr>
<tr>
<td>HDL-C</td>
<td>32.589±8.784</td>
<td>36.514±9.687</td>
</tr>
<tr>
<td>LDL-C</td>
<td>100.523±28.999</td>
<td>95.122±22.949</td>
</tr>
<tr>
<td>VLDL-C</td>
<td>20.980±2.782</td>
<td>15.809±3.255</td>
</tr>
</tbody>
</table>

Discussion:
The increase in visfatin levels in breast cancer patient’s agreement with (13) and (14). Visfatin stimulates malignant tumors and related to the worst clinical factors (15), (14) Reported that extracellular visfatin increase the growth of breast cancer cells and capability secondary growth of cancerous tumors through activation two factor or proteins important in incidence cancer. (6) Whoreported that high serum visfatin level was associated with poorer survival of breast cancer patient. A high level of serum visfatin was associated with malignant breast cancer behavior, and the level of serum visfatin could offer a means for prognosis in breast cancer (14). The increase in cholesterol, TG, LDL-C, concentrations agreement with (16), who reported that chol, TG, LDL-C, increased in breast cancer patients also (17), pointed that there is a relationship between increase chol levels and infected with breast cancer. There is a relationship between cell growth and cholesterol biosynthesis (18). Breast cancer stimulate cholesterol increasing because it activate tumor spreading and growing (19). (20) Reported that a high LDL-C level increases the risk of breast cancer. HDL-C didn’t show any significant between cancer patient and control difference and this agreement with (16). HDL-C inhibits the uptake of LDL-C from arteries walls and facilitates transport cholesterol from peripheral tissues to the liver (21). High LDL-C level may produce from lipid peroxidation increase in a breast cancer patient, this results in oxidation and cellular injuries (16). High VLDL-C may be due to increasing the oxidation in the body that causes decreased activity of lipoprotein lipase which leads to increase VLDL-C (20). In conclusion: visfatin hormone levels increase in the breast cancer patient and this may relate with high lipid profile in these patients.
References: