Effect of Blood Cupping on Some Biochemical Parameter

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Abstract

Objective: Blood cupping as an accepted therapeutic practice preferred sometimes for its safety, effectiveness use and faraway of manufactured drugs toxicity. This study was conducted to investigate the effect of blood cupping on some serum biochemical parameters.

Subjects and Methods: This study was a randomized controlled trial included 60 healthy subjects, aged between 18 to 50 years and were randomly assigned and subjected to blood cupping. Venous blood was collected and routine blood biochemical assessment was performed once at the baseline time of blood cupping and then 10 days after cupping.

Result: There was significant difference in the reduction of blood pressure 10 days after blood cupping compared with the baseline in both systolic (p<0.05) and diastolic (p<0.01). On the same line, there was a substantial significant decrease in serum total cholesterol (p<0.01), triglycerides (TG) (p<0.001) and low density lipoproteins (LDL) (p<0.05) and an enhanced serum high density lipoprotein (HDL) cholesterol levels (p<0.05). In addition, serum creatinine levels (p<0.05) and uric acid (p<0.01) were significantly reduced after cupping compared to the baseline levels, meanwhile blood urea and glucose levels were non-significantly decreased by 15% and 7%, respectively.

Conclusion: These data suggest that blood cupping is a technique might be associated with decreased risk of cardiovascular disease, obesity and enhanced and improved kidney function test.

Key Words: Blood cupping therapy – Blood pressure – Hyperlipidemia – Diabetes type 2 – Kidney function test.

Introduction

BLOOD cupping history refers to the ancient time before Islam to 3300 BC in Macedonia. It is one of oldest medical practice, have been practiced among diverse ancient people [1]. Blood cupping was invented by philosophies around the time of Hippocrates, who mentioned blood cupping, relied on dietary techniques, cupping rules and the suitable time for cupping [2]. According to an anecdotes of Islam blood cupping is Prophet tradition. Ibn Abbas (R.A) reported God’s messenger (peace be upon him) as saying ”There is a remedy in three thing: The incision of a blood cupping, a drink of honey, or cauterization by fire, but I forbid my people to cauterize”, and Hadrat Anas (RA) reports that God’s messenger (BMPH) said ”The best medicine is blood cupping” and he underwent cupping his leg [3]. In the absence of other treatment, the benefits of blood cupping only began to be seriously questioned in the second half of the 1800s for instance to clear out infected or weakened blood or its ability to cause hemorrhages to cease [4]. Blood cupping persisted into the 20th century and recommended today in the treatment of some diseases [5].

Blood cupping is an operation of drawing some blood by applying a cup to scarified skin [6], where a cup is attached to the specific area of skin surface along the back to cause local congestion through the negative pressure created [7]. In that practice, the skin is pinched, sometimes at specific point (e.g. bladder meridian points), generally the areas of the body that are fleshy, are preferred sites for cupping, the cup is left for about five minutes until a redness is generated [8]. Blood cupping has the function of warming and promoting the flow of energy in the blood thus dispelling cold, dampness, toxins, and winds and as well as diminish pain [9]. In Arabic and Islamic world in according to Islam’s anecdotes cupping is good for body health, increases the memory and vision power. Today is commonly used in the treatment of few diseases including hemochromatosis and polycythemia [10]. The aim of this study is to investigate the effect of blood cupping on some serum biochemical parameters.
Material and Methods

Study design:

Subjects who considered being eligible to be participated in the study were healthy that include age, Basal Metabolic Index (BMI), Qat chewing, fasting state and drug administration. The total number of subjects was 60 out of which 40 were males and 20 were females aged 18-60 years old. Two samples were taken from each subject, first sample was venous blood taken before blood cupping at base line and the second sample was taken ten days after blood cupping. All blood samples were tested for serum total cholesterol, triglycerides (TG), high density lipoprotein (HDL), low density lipoprotein (LDL), glutamate oxaloacetate transaminase (GOT), glutamate pyruvate transaminase (GPT), alkaline phosphatase (ALP), urea, creatinin, uric acid, iron binding capacity (TIBC) and serum ferritine.

Analytical determinations:

Serum glucose was measured by glucose oxidase method (Quimica Clinica Aplicada-Spain), cholesterol by direct immune-inhibition (IVD, Dialap-Germany), high density lipoprotein (HDL) CHOD-PAP and triglyceride GPO-PAP by enzymatic method with lipid clearing factor (Human diagnostics-Germany), while low density lipoprotein (LDL) was calculated using Friedewald, et al. 1972 equation. Glutamate oxaloacetate transaminase (GOT), glutamate pyruvate transaminase (GPT), alkaline phosphatase (ALP), urea, creatinin, uric acid, iron binding capacity (TIBC) and serum ferritine levels were determined by the modified IFCC method (Dialap – Germany). Serum creatinin was estimated by Jaff’s kinetic method, uric acid by Pap method (Human-Germany) and urea urea liquid UV GLDH method (Human-Germany). Serum ferritin was determined by microparticle enzyme immune-assay (AxSYM: Abbott laboratories, abbott park), while total iron binding capacity (TIBC) was estimated by photometric colorimetric test (Human-Germany).

Statistical analysis:

Data were presented as mean ± SD and analyzed with ANOVA test using SPSS version 15.

Results

As shown in Table (1), the clinical and biochemical characteristics of this study subjects were a comparison between the baseline (before cupping) and 10 days after cupping. Systolic and diastolic blood pressure was significantly lower after cupping compared to ten days after cupping of (p<0.01 and p<0.05 respectively) as well as serum levels of creatinine (p<0.05) and uric acid (p<0.01). Meanwhile blood urea and glucose levels were non-significantly decreased by 15% and 7%, respectively, although 15 subject of 60 were not fasting at baseline.

Table (2) highlights the results of lipid profiles before and after cupping. A substantial decrease in serum total cholesterol, TG and LDL-cholesterol levels after cupping (p<0.01, p<0.001 and p<0.05, respectively), were observed. Whereas a significantly enhanced serum HDL-cholesterol levels (p<0.05) were noted.

In contrast, no-significant differences were found in serum GPT, GOT, ALP and TIBC levels after ten days of blood cupping compared to the base line levels. On the other hand serum ferritine levels were significantly decreased (p<0.05) after blood cupping when compared to base line levels Table (3).

Table (1): Mean ± SD in blood serum before and after blood cupping.

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Before cupping</th>
<th>After cupping</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diastolic BP (mmHg)</td>
<td>81.1±18.2</td>
<td>75.0±10.9**</td>
</tr>
<tr>
<td>Systolic BP (mmHg)</td>
<td>121.3±14.3</td>
<td>115.4±11.8*</td>
</tr>
<tr>
<td>FBG (mg/dl)</td>
<td>87.0±22.4</td>
<td>81.5±19.5</td>
</tr>
<tr>
<td>Creatinine (mg/dl)</td>
<td>0.8±0.15</td>
<td>0.7±0.16*</td>
</tr>
<tr>
<td>Urea (mg/dl)</td>
<td>21.8±8.7</td>
<td>19.5±5.2</td>
</tr>
<tr>
<td>Uric acid (mg/dl)</td>
<td>4.5±1.3</td>
<td>3.7±1.1**</td>
</tr>
</tbody>
</table>

*p<0.05, **p<0.01

Table (2): Mean ± SD in blood serum before and after blood cupping.

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Before cupping</th>
<th>After cupping</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total cholesterol (mg/dl)</td>
<td>158.2±33.5</td>
<td>136.3±34.9***</td>
</tr>
<tr>
<td>Triglyceride (mg/dl)</td>
<td>164.9±56.2</td>
<td>119.8±45.4***</td>
</tr>
<tr>
<td>HDL-Cholesterol (mg/dl)</td>
<td>43.2±13.8</td>
<td>51.0±21.1*</td>
</tr>
<tr>
<td>LDL-Cholesterol (mg/dl)</td>
<td>71.8±33.8</td>
<td>55.1±23.4*</td>
</tr>
</tbody>
</table>

*p<0.05, **p<0.01, ***p<0.001

Table (3): Mean ± SD in blood serum before and 10 days after blood cupping.

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Before cupping</th>
<th>After cupping</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALP (U/L)</td>
<td>127.5±48.8</td>
<td>122.9±38.5</td>
</tr>
<tr>
<td>GPT (U/L)</td>
<td>16.7±7.9</td>
<td>15.9±7.9</td>
</tr>
<tr>
<td>GOT (U/L)</td>
<td>25.6±11.8</td>
<td>23.5±19.0</td>
</tr>
<tr>
<td>Ferritine (ng/ml)</td>
<td>129.4±59.2</td>
<td>100.6±45.8*</td>
</tr>
<tr>
<td>TIBC (µg/dl)</td>
<td>310.4±52.7</td>
<td>299.2±71.8</td>
</tr>
</tbody>
</table>

*p<0.05.
Serum glucose, cholesterol, and triglyceride levels after blood cupping in comparison to baseline.

Fig. (1): Changes of different biochemical parameter after blood cupping in comparison to baseline.

Statistical correlations:
Levels of serum glucose correlated significantly with diastolic BP ($r=0.2; p=0.04$). Similarly, serum creatinine levels found correlated significantly with BMI ($r=0.4; p=0.008$), urea ($r=0.4; p=0.002$) and uric acid ($r=0.2; p=0.02$). As expected serum triglycerides, total cholesterol and LDL-cholesterol extremely correlated significantly with each other ($r > 0.6; p < 0.0001$). In parallel, serum uric acid levels correlated significantly with TG, TC and SGPT ($r=0.5; p < 0.0001$). Significant correlation were found between ALP and glucose ($r=0.2; p=0.03$), LDL-cholesterol ($r=0.3; p=0.01$), HDL-cholesterol ($r=0.4; p < 0.0001$), ferritin ($r=-0.3; p=0.01$), and TIBC ($r=-0.3; p=0.003$).

Discussion
At the time of improved public health service in our country, there was a marked increase in the number of patient referring to blood cupping, and that majority of them were young and educated patient but suffering diseases with pain, long duration symptoms and non responsiveness to chemotherapy was the main motivator to turn to blood cupping. The majority of physicians agreed with the necessity to have professional and specialized blood cupping centers to serve the ever growing demand for alternative medicine in our country. In the absence of other treatments of hypertension, blood cupping technique is said to promote blood circulation, remove stasis and could sometimes have had a beneficial effect in temporarily reducing blood pressure by a reduction in blood volume, including the fluid overload of heart failure [11]. According to an anecdote of Islam’s Messenger advised that one should undergo cupping on 17, 19, and 21 not on 13, 14, and 15 day of every month of lunar calendar [12], when the moon gravitational is on the highest level, blood comes to the body surface and skin. Previous studies observed that after blood cupping there were changes of erythrocyte rheological properties, were interconnected with changes of the Na, K-ATPase activity and were aimed at optimizing blood circulating in large vessel and capillary network [13].

Fasting blood sugar, were further reduced after blood cupping, even though with no significant difference because fifteen subject out of sixty were not fasted. Blood cupping enhances insulin sensitivity in healthy donors with normal glucose tolerance and normoferritinemia [14]. Bleeding was found to decrease serum glucose and TG in patient with diabetes [15], this is in agreement with our observation, since blood cupping was found to reduce blood glucose and TG. Moreover there was a positive correlation between glucose and BMI ($r=0.4$ and $p=0.01$ Fig. (4), this result was found to be consistent with the previous studies, there was a relationship between whole blood glucose and obesity in NIDDM, might have an effect on insulin sensitivity and B-cell function [16,17].

Liver enzymes GPT, GOT and ALP were found to be not substantially changed during this study, in this regard previous study have shown unchanged levels of liver enzymes [18].

Ferritin was significantly lower after blood cupping, suggesting that blood cupping may contribute as an adjuvant treatment in patient who have type 2 diabetes with increased serum ferritin concentration [18,19]. An increase in iron stores predicted the development of diabetes in epidemiological studies [20,21]. It is interesting that a lower
prevalence of diabetes was recorded among frequent blood donors in a recent report [14].

Reduced blood levels of total cholesterol, TG, LDL-cholesterol, and increased HDL-cholesterol from baseline improved metabolic control; this improvement in lipid profiles after blood cupping was a remarkable effect in this study. Blood cupping has been reported to have effects on preventing hyperlipidemic formation [6,7]. Blood cholesterol levels slightly increase in subjects 40-60 years old with no more than 190 mg/d, blood cupping may be consequently an effective method could improve lipoprotein metabolism and preventive against atherosclerosis. Reduced TG levels slightly increase in subjects at 40-60 years of age [24,25]. Other studies have reported that bleeding was found to decrease serum glucose and triglyceride in patient with diabetes [18].

Serum creatinine is the most commonly used indicator of renal function. Urea also reflect the renal function and increases when renal function decline [22,23]. In this study it is not surprising that a relationship between creatinine and urea (r=0.3; p=0.002) and creatinine with uric acid, (r=0.2; p=0.02 respectively), similarly, these findings given an accurate renal function assessment which are important in the diagnosis and treatment of kidney diseases, adjustment of drug dosages, and decision-making regarding when to initiate renal replacement therapy. Studies from the general population suggest that obesity also may be harmful to the kidney in individuals without hypertension, diabetes, or preexisting renal disease [24,25]. In fact, in our present study a correlation between creatinine and body mass index (r=0.42; p=0.008), was reported. This has been previously observed in the middle aged individuals in the general population [26]. This should be expected because creatinine originates non-enzymatically from creatin and this may also explain the higher concentration in men than women [27].

Conclusion:

The findings of the present study indicate that blood cupping could decrease blood pressure and may contribute to hypertension treatment. From the whole previous points we conclude that these data suggest that blood cupping is an adequate and safe technique, might be associated with decreased risk of cardiovascular disease, obesity and enhanced and improved kidney function test. This is a preliminary observation that needs to be confirmed in a larger sample of subjects.

References

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