Original Article

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Monitoring Al-Hijamah therapy on PCV% in tobacco smokers: Pre-post analysis

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ABSTRACT

Background: Al-hijamah is a traditional therapy used to clear blood and interstitial fluids, thereby helping maintain optimal levels of various blood solutes. Smoking is known to increase packed cell volume percentage (PCV%), leading to increased blood viscosity and associated complications. **Aim**: This study aimed to examine the impact of Al-hijamah therapy on reducing elevated PCV levels in healthy adult smokers. **Methods**: A pre-post study was conducted on 25 healthy male adults aged 30–55 years who underwent Al-hijamah therapy in Fallujah, Iraq. All the participants were smokers who were medication-free and had PCV% values near the upper limit. Al-Hijamah was performed at five specific points of the posterior neck, bilateral paraspinal areas of the neck, and the thoracic spine. Venous blood samples were collected to measure PCV% three and seven days before and after the treatment. The result was statistically analyzed using t-test and p-value by SPSS version 25. **Results**: The pre-treatment PCV% values were equal to nearly the upper limit of the normal range (mean = 46.12%). A statistically significant reduction was observed after three days of treatment (mean = 43.20%, p-value = 0.000), which decreased slightly after four more days (43.16%). There was no significant change between day 3 and 7 (p-value = 0.942). **Conclusion**: Al-hijamah therapy can rapidly and significantly reduce elevated PCV% in healthy adult smokers within three days of treatment, with effects persisting for at least a week.

Keywords: Al-Hijamah, prophetic therapy, smoker's polycythemia, smoking, hyperviscosity

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INTRODUCTION

Smoking is a harmful habit that contributes to the development of cardiovascular disease. It causes hyperviscosity, also known as smoker's polycythemia, which is characterized by a high red blood cell (RBC) concentration and reduced plasma volume, attributable to chronic tobacco smoking.[1] The carbon monoxide (CO) baseline in the blood is 1%–3% in non-smokers but can rise to 10%–15% in smokers. Tobacco smoke is a source of CO, which binds to hemoglobin with an affinity around 200 times greater than that of oxygen, subsequently forming carboxyhemoglobin. By displacing oxygen, CO decreases the oxygen delivery to tissues, causing complications such as marked cellular hypoxia and acidosis.[2,3] Although this formation process is reversible

due to tight binding and high affinity, carboxyhemoglobin has a prolonged half-life in room air, lasting up to two hours or more.[4] Since smoking rates are rising globally, we need safe, effective tools to mitigate the harmful effects and complications of this unhealthy habit. One such traditional intervention is Al-hijamah or wet cupping therapy. Cupping therapy dates back to over 2000 years ago and encompasses various techniques such as needle cupping, moving cupping, retained cupping, medicinal (herbal) cupping, and bleeding cupping (wet cupping). The last one is the most commonly used type, and our present study aims to investigate its impact on blood viscosity.[5]

Each technique is selected depending on the targeted disease or treatment goal.[5] In wet cupping, a special glass cup is applied on the skin over an acupuncture point or reflex zone, creating a vacuum over certain points on the skin.[6] Researchers hypothesize that the use of cups on selected acupoints results in a therapeutic effect of hyperemia.[7] Wet cupping therapy is commonly used to treat pain-related conditions such as chronic muscle pain, fibromyalgia, herpes zoster pain, and neuralgias such as headache and sciatica. It is also used for other conditions such as cough or asthma, acne, common cold, urticaria, facial paralysis, soft tissue injury, arthritis, and neurodermatitis.[5]

This therapy's main purpose is to enhance blood circulation and remove blood-stasis and waste from the body. Local damage to the skin and capillary vessels may act as a nociceptive stimulus.[6] Wet cupping is claimed to be beneficial because it drains excess fluids and toxins, loosens adhesions, lifts connective tissue, increases blood flow to the skin and muscles, and stimulates the peripheral nervous system.[8] Cupping therapy is also used to improve subcutaneous blood flow and potentially reduce high blood pressure.[6]

Al-hijamah is based on the Taibah mechanism (Taibah theory), which is an evidence-based theory that suggests the therapy clears blood and interstitial fluids from any abnormal substances in the body. For example, it can reduce high levels of serum ferritin. Further, this mechanism draws out unwanted substances using a physiological principle known as pressure-dependent excretion, similar to the excretion process in renal glomerular filtration.[9,10]

MATERIALS AND METHODS

Sampled Selection

The study included 25 male cigarette smokers, aged 30–55 years, from Fallujah, Iraq. They were free from pathogens or serious conditions of the spine/spinal cord, malignancies blood-borne diseases, hemostatic abnormalities, or immune disorders.

Al-hijamah (Wet-Cupping) Procedure

Certified, experienced practitioners performed Al-hijamah procedures at a local center that was officially permitted. Sterile disposable cups with a diameter of 5 cm were applied to five specific points of the posterior neck and the bilateral paraspinal areas of the neck and thoracic spine (Fig. 1). Negative pressure was applied using a cupping pump for three minutes, after which the cups were removed. Next, the skin was punctured to a depth of 2 mm within each cupping site using a 26-gauge disposable lancet. Vacuum pumping was then applied for a second time, resulting in the drainage of 3–5 cm^3 of blood per cupping site. Finally, the application sites were sterilized and covered.

Figure 1: The distribution of punctures per cupping site on the selected puncture sites on volunteers' backs.

Data Collection and Outcome Measurements

Medical history and age of each patient was obtained via interview before phlebotomy to ensure that the individual was a healthy smoker without underlying conditions. Venous blood samples were collected at three time points: before the wet cupping procedure, three days after the procedure, and seven days after the procedure.

Statistical Analysis

Packed cell volume (PCV) values from the three time points were subsequently analyzed statistically by SPSS version 25 for Windows 10 using t-test with p-value < 0.05 for a significant difference.

RESULTS

A total of 25 volunteers were involved in this study, with PCV approximately equal to the upper limit of the normal range (PCV mean = 46.12%). Following Al-hijamah therapy, a significant reduction in PCV% was observed, as demonstrated in Table 1.

The period between day_off and post-hijamah 7_days is divided into three pairs (Table 1) to investigate and compare statistical measurements among them and establish the peak or graduated change of PCV values over the seven days. The analysis showed significant changes in Pairs 1 and 2 (Table 2), whereas the change in Pair 3 was only slight and non-significant. This suggests that the major change occurred within the first three days of Al-hijamah employment.

Table 1: Descriptive table of PCV mean, standard deviation, and standard error mean values.

		Mean	Std. Deviation	Std. Error Mean
Pair 1	day_off	46.12	2.862	.572
	day_3	43.20	2.843	.569
Pair 2	day_off	46.12	2.862	.572
	day_7	43.16	4.140	.828
Pair 3	day_3	43.20	2.843	.569
	day_7	43.16	4.140	.828

NB: These values are mentioned and grouped according to the employment of Al-hijamah therapy: day_off refers to PCV values before hijamah employment, day_3 refers to PCV values three days post-hijamah employment, and day_7 refers to PCV values one week post-hijamah employment.

Table 2: The significance value (P value in 2-tailed test) for each pair between two appointments.

		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval		t	df	Sig. (2-tailed)
					Lower	Upper			
Pair 1	day_off – day_3	2.92	1.382	0.276	2.35	3.49	10.564	24	0.000
Pair 2	day_off – day_7	2.96	3.310	0.662	1.594	4.326	4.471	24	0.000
Pair 3	day_3 – day_7	0.04	2.715	0.543	1.081	1.161	0.074	24	0.942

DISCUSSION

The significant reduction in PCV% from 46.12% to 43.20% after three days indicates that Al-hijamah therapy effectively lowers blood viscosity in the short term for smokers with high-normal PCV%.

The slight decrease to 43.16% after seven days, which was not statistically significant from the three-day value, suggests that the most substantial effect occurs within the first few days post-therapy and that the impact plateaus thereafter. This result also suggests that Al-hijamah therapy caused a decrease in PCV due to the shift and excretion of excessive RBCs from tissue and blood (i.e., redistribution) in response to applied vacuum forces within normal blood clotting time (minimum blood loss).

These results are consistent with the Taibah theory that Al-hijamah helps clear any abnormally elevated causative pathological substances from blood and interstitial fluids using an excretory physiological principle (pressure-dependent excretion) that resembles excretion through renal glomerular filtration.[9,10]

Sustained Effect

The sustained lower PCV% from day 3 to day 7 indicates that the effect of Al-hijamah lasts for at least a week, with no further significant reduction beyond the initial drop.

Clinical Implications

For smokers with high-normal PCV%, Al-hijamah therapy could be a feasible non-pharmacological intervention to quickly reduce blood viscosity and potentially decrease the risk of hyperviscosity-related complications. The lack of additional significant changes beyond the initial reduction suggests this therapy could be used periodically for managing blood viscosity.

CONCLUSIONS

This study demonstrates that Al-hijamah therapy can rapidly and significantly reduce PCV% in healthy adult smokers, with effects sustained for at least a week. This suggests its potential utility in managing blood viscosity in populations at risk of hyperviscosity-related conditions. this study highlights that Al-hijamah can benefit even healthy non-smokers by regulating their PCV levels to the optimum. From a biochemical perspective, we hypothesize that the mechanism involves removing any blood solutes that have a higher than or approximate high-normal range with minimum blood loss. The applied suction can accumulate these high-concentrated solutes or cells near the skin, which are then removed percutaneously.

Recommendations: Smokers should consider regular Al-hijamah therapy as a preventive measure against elevated PCV% and its complications. The timing of follow-up sessions should be personalized based on laboratory results.

Limitations: The study didn't determine which type of RBC was filtered more, such as those carrying normal hemoglobin or carboxyhemoglobin. Additionally, since the sample size was limited to 25 individuals from a specific geographic location, the generalizability of the findings may be affected.

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