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Effect of yoga hand mudra on cardiac and neurological parameters in preventing heart attack

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Abstract

Heart attack is the leading cause of death worldwide and incidence of cases are increasing every day. Yoga hand mudra is effective in improving medical conditions like heart attack, blood pressure, diabetes and many more. In our study, male and female subjects (n=41)(normal 27 and heart patients 14) aged between 30-65 years were included. On all subjects, yoga hand mudra was tried as per study protocol and both cardiac and neurological parameters were recorded before and after performing mudra. In heart patient subjects, there was a substantial reduction in systolic, diastolic blood pressure, heart rate and blood viscosity. Moreover, increase in myocardial blood perfusion volume, coronary perfusion pressure, brain tissue blood supply and memory index was observed. We propose, this yoga mudra makes its effect through the nerve endings in fingers. The interplay of fingers sensitizes nerves in palm and wrist area which in turn makes a systemic effect on cardiovascular system and improves it. This yoga mudra is an emergency tool for primary supportive medical care on the spot for heart attack till hospitalization. Thus, this mudra is coined as V Mudra - a possible victory over death.

Keywords: Heart attack, V Mudra, Yoga Hand Mudra, Heart Mudra, Hand Mudra.

Introduction

Heart attack is the major clinical health problem responsible for large number of deaths worldwide[1]. Heart attack is included under chronic diseases and they are a major cause of death and disability around the world. As per World health organization the total projected deaths in India due to chronic disease in 2005 was 5,46,6000 and in the next 10 years over 60 million will die of chronic diseases. Chronic diseases in India as per World Health organization in 2005 were Communicable, maternal and perinatal, nutritional deficiencies 36%, Cardiovascular disease (CVD) 28%, injuries 11%, other chronic diseases 8%, cancer 8%, chronic respiratory disease 7%, and Diabetes 2%[2]. Cardiovascular diseases have now become almost quarter of the total mortality. Stroke and Ischemic heart disease are one of the major causes of deaths. The global burden of disease estimates CVD death rate of 272 per 100000 population in India is much higher than the global average of 235 per 100000 population[3]. The prevalence of heart failure in India due to coronary artery diseases, diabetes, obesity, high blood pressure and rheumatic heart diseases ranges from 1.3 to 4.6 million, with an annual incidence of 4,91,600 - 1.8 million[4]. Despite recent advances in Medical science, the percentage of mortality and morbidity due to heart failure remains high[5]. It has been shown that regular practice of Yoga therapy technique can have significant positive effect on patients suffering from heart disease. Several studies have shown the health benefits of yoga, primarily on high blood pressure, obesity and high cholesterol which are the leading risk factors associated with heart diseases[6-10].

Our learned scientists called "Rishis" thousands of years back have described yoga techniques in ancient Indian texts which taught us the correct mode of yoga, but all these procedures are Shruti which means they have been passed on to disciples practically or through oral tradition. With the advent of knowledge keeping as written text this practice disappeared and text remains for us to explore it again through practice. By the study of a single Shastra, a man can never catch the true importance of this science of medicine. Therefore, a physician should study as many allied branches of science as possible[11]. World health organization has advised repeatedly for heart, hypertension and other chronic disease to be treated with alternative and traditional medicine[12]. The yoga techniques balance the sympathetic and parasympathetic nervous system, which have been shown to provide optimal health[13].

Hand Gestures or Yoga hand Mudras are a part of yoga and they generate positive feelings and health improvement by working on fingers touching specific hand palm locations[14]. In vedic times, worshipping was being performed by classical dances with full emotions and hand, legs movement with proper postures. The dance performer with this worshipping would feel

devotion to God with excellent results. Simultaneously, the hand postures were taken into account in all parts of life including spiritual and health benefit aspects. This health benefits in the form of hand gestures or yoga mudras were then used to prevent and eradicate diseases. The literature search showed very limited publications on yoga hand mudras and its practical application[15]. This study was undertaken to evaluate the effect of yoga hand mudra on cardiac and neurological parameters for preventing heart attack till the person reaches the hospital and receives medical treatment. Yoga hand mudra can prove to be an important lifesaving therapy to be supplemented with routine medical aid in cardiac patients.

Methodology

The study was conducted from December 2015 to October 2016 and included 41 subjects from Indore city, Madhya Pradesh, India. The subjects were aged between 30-65 years. Out of 41 subjects 14 were diagnosed as heart patients and 27 were healthy volunteers. A prior written consent of all subjects was taken followed by explanation of hand mudra protocol. The subjects were asked to relax for 20 minutes before recording all the parameters. Heart rate was measured by doctor and blood pressure was recorded by sphygmomanometer. The blood viscosity, myocardial blood perfusion volume, coronary perfusion pressure, brain tissue blood supply and memory index were measured by 4G-Quantum magnetic resonance Analyzer, Keva, Japan. MS Office 2010 software and paired t test was used for statistical data analysis of the current study.

Yoga hand mudra procedure[16] shown in Figure-1: i. First fold the index finger to slight below the route line of the thumb for both the hands and press the tip of index finger. ii. In the next step touch the fingertips of the middle finger and ring finger slightly above the midpoint of the distal phalanx of the thumb. iii. In the final step put pressure on the intermediate phalanx of the thumb on the index finger put below and press the distal phalanx of the thumb on middle finger and one third of ring finger. iv. Perform this mudra for 15 minutes.

Results and discussion

The data for fourteen heart patient who performed yoga hand mudra for 15 minutes were analyzed. The results obtained are expressed as Mean $\pm$ Standard deviation (Table-1, Table - 2).

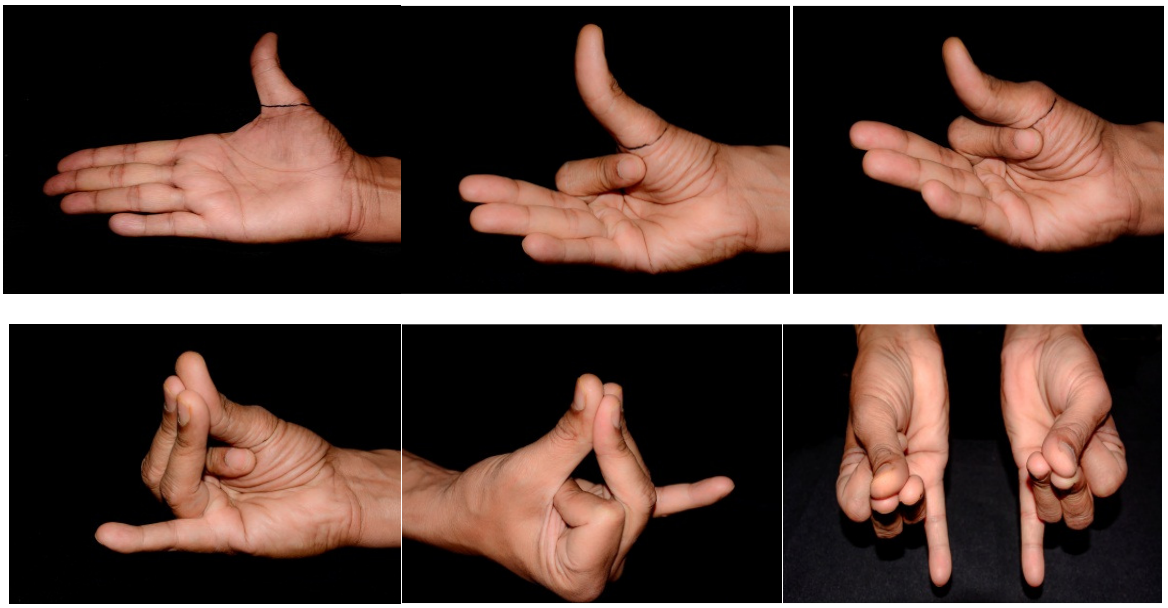

Figure-1: Showing sequence of steps for performing V-Mudra.

Table-1: Effect of Yoga Hand mudra on Heart patients measuring Heart Rate and Blood pressure.

Variable	Before yogic hand mudra	After 15 minutes of yogic hand mudra	P value
Heart Rate (bts/min.)	71.5 $\pm$ 15.08	68 $\pm$ 12.74	<0.001 **
SBP (mmHg)	134.57 $\pm$ 14.79	127.71 $\pm$ 11.42	<0.001 **
DBP (mmHg)	84.5 $\pm$ 7.94	80.21 $\pm$ 5.69	<0.01 *

** Highly significant, *Significant, SBP = systolic blood pressure, DBP = diastolic blood pressure.

Table-2: Effect of Yoga Hand mudra on Heart patients using Quantum Magnetic Resonance Analyzer measuring Cardiac and Neurological Parameters.

Variable	Before yogic hand mudra Mean ±SD	After 15 minutes of yogic hand mudra Mean ± SD	P value
Blood Viscosity	62.70+8.73	61.44+8.99	<0.001**
Myocardial Blood Perfusion Volume	4.52 ± 0.46	4.70 ± 0.44	<0.01*
Coronary Perfusion Pressure	15.25 ± 5.02	16.38 ± 4.38	<0.01*
Brain Tissue Blood Supply	115.19 ± 28.20	124.96 ± 27.13	<0.01*
Memory Index	0.22±0.12	0.26±0.15	<0.001**

** Highly significant, * Significant

The effect of Yoga Hand Mudra on heart patients measuring heart rate and blood pressure is as shown in Table-1. Heart rate data shows highly statistically significant results (reduction) after performing yoga mudra in the heart patients. Further, systolic blood pressure and diastolic blood pressure also showed similar results in form of lowered values in our study.

The effect of yoga hand mudra on heart patients using quantum magnetic resonance analyzer measuring cardiac and neurological parameters is as shown in Table-2. The blood viscosity showed highly statistically significant results (reduction) after performing yoga hand mudra. The Myocardial blood perfusion volume showed a net increase in post yoga mudra in the patients. Similar results were seen in the parameter coronary perfusion pressure. Both the myocardial blood perfusion volume and coronary perfusion pressure parameters data values were statistically significant.

The neurological parameters of brain tissue blood supply and memory index also showed marked elevation in the patients after performing the mudra as shown in Table-2. The parameter of brain tissue blood supply was statistically significant and memory index was highly significant.

A poor quality of life is experienced by people with heart attack and some kind of stress is also seen among them. However, medications have improved symptoms and decreased mortality, side effects and substantial risks plague the consistent use of these medications. As per the present understanding of the human physiology these drugs are targeted towards the symptoms of a particular disease; In contrast disease is manifestation of imbalance of a complex network. In case of a disease, specific symptoms arise due to failure of the equilibrium of multiple physiological axis. Medication can handle the direct cause of certain symptom in a particular disease but fail to address the issue of multiple physiological axis coordinating to maintain a functional state. One such system is nervous system and neuro-hormonal axis. Human physiology is controlled and supervised by nervous system in assistance with hormonal system[17]. Proper coordination of organ or organ system with neuro-hormonal axis is prerequisite for homeostasis in body. Here comes the role of alternative physical activity such as yoga to drag the physiology towards required equilibrium for healthy life by impacting both the organ system of interest as well as the complex network of nervous system and neuro-hormonal system[17]. In association with medications, specific yoga postures, breathing yoga, yoga hand mudra and a balanced life style help to attain speedy recovery as well as prevention from further complications in certain diseased condition. Irrespective of disease, yoga practices ward off the harmful impact of stress and toxins generated in the body in daily life by activities or environment[17]. Yoga hand Mudra also improves the physical, spiritual and mental health and is inexpensive technique without any adverse effects. Yoga Hand Mudras have its origin from tradition of yoga established by Indian "Rishis" thousands of years back in history[14,16].

In the present study heart rate, systolic BP, diastolic BP and blood viscosity were substantially reduced after practicing "V-Mudra" for fifteen minutes on both hands. A different study by BH Krishna et al have also indicated decrease in heart rate, blood pressure and myocardial oxygen consumption (by rate pressure product) in yoga group compared to control group[18].While other studies have also documented reduction in heart rate and blood pressure after yoga, in our case it was observed with "V-Mudra" [19-21]. Instead of full body exercise or yoga posture which changes overall blood flow of vascular system and can be explained to make changes in cardiovascular parameter "V-Mudra" only uses fingers and exert similar effect pushed us to observe more parameters other than cardiovascular parameter to find some explanation. In one study by some other group, short term aerobic exercise shown to improves and increases the brain blood supply, cognition, memory, cardiovascular parameters in adults[22]. In our study, we also observed significant increase in myocardial blood perfusion volume, coronary perfusion pressure as well as brain tissue blood supply and memory index after practice of "V-Mudra".

We recognize, limitation of the small sample size in this study, but these preliminary results indicate the importance of large-scale study on the long-term effects of hand mudras practices in future, especially to observe clinical changes on a particular

diseased condition. Another limitation is that we maintained the same practice session for all the subjects their daily life style and other clinical complication varies in different subjects. However, we made sure to record observations immediately after the practice session so that it would not impacted by variation in daily life of subjects.

Based on our observation and study of neuroanatomical features in hand specifically in palm, we propose, this yoga hand mudra makes its effect through the nerve endings in fingers and palm area. The interplay of fingers (middle finger, ring finger, index finger and thumb) sensitizes nerves in palm and wrist area. Pressure on these nerves in turn makes a systemic effect on cardiovascular parameters through peripheral nerves and specific areas of brain. Subsequently reduction in heart rate and blood pressure indicates a shift in the balancing components of autonomic nervous system in favor of the parasympathetic activity. This modulation of autonomic nervous system might have been driven by the conditioning effect of yoga hand mudra on autonomic functions. The effect on the autonomic system might be mediated through the peripheral nervous system and higher areas of central nervous system. As we proposed this mudra might have conditioning effect on autonomic system and also involve specific areas of central nervous system can hold the physiological condition of the patient till hospitalization and can save a life. In our preliminary study this mudra has been tried by one of the doctor on three different patients at the time of severe chest pain and fainting (heart attack). After performing the mudra patient were stabilized and shifted to the hospital for further treatment. Further, we have observed, apart from saving life in diseased person, the regular practice of this mudra in normal healthy person will create a healthy heart, strong brain and sharp memory.

Conclusion

The results of the current study indicates that this yoga mudra can be used as an emergency tool for saving patient life in preventing heart attack till the patient reaches the hospital and receives treatment. Thus, this mudra is coined as “V Mudra” - a possible victory over death.

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