ORIGINAL RESEARCH PAPER

Physiology

KEY WORDS: Hypertension, Reaction Time,yoga

COMPARISON OF REACTION TIME BETWEEN HYPERTENSIVE OF AGE 40-60 YEARS PRACTISING YOGA AND NOT PRACTISING YOGA

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ABSTRACT

Background : Lifestyle related diseases such as coronary artery disease, obesity and hypertension are alarmingly on the rise in our modern society, yoga based lifestyle should be given a special place in preventing and managing these diseases.Hypertension is characterised by cognitive deficits.Yoga is mind-body technique which involves relaxation, meditation and a set of physical exercises performed in sync with breathing.

Methods: The study population size of 60, age and sex matched hypertensives, after a detailed history and anthropometric data collection were grouped into two groups :

Group A-practising yoga from yoga training centre in panvel and Group B- not practising yoga from general population, Mumbai. Reaction time were recorded by using software cognitivefun.in.

Results: It was observed that hypertensive subjects practising yoga has less visual and auditory reaction time as compare to those who are not practising yoga. The comparison of reaction time was significantly different ($p< 0.001$)between two groups which was suggestive better neuromuscular coordination of various physical,chemical and mechanical processes which decodes the visual and auditory stimuli reaching higher center via afferent pathway as a sensory stimuli in Group A as compared to Group B.

Conclusion: The present study therefore, indicated that yoga has a potential for strengthening of neurocognition in high risk people and if practised extensively can helpful with no side effects as a cost effective tool to reduce the morbidity in hypertensives.

INTRODUCTION

The term "yoga" and the English word "yoke" are derived from Sanskrit root "yuj" which means union. Yoga is a psychosomatic-spiritual discipline for achieving union & harmony between our mind, body and soul and the ultimate union of our individual consciousness with the Universal consciousness. Yoga is mind-body technique which involves relaxation, meditation and a set of physical exercises performed in sync with breathing. Being holistic, it is the best means for achieving physical, mental, social and spiritual well being. This can be achieved by systematic and disciplined practice of ashtanga (eight-limbed) yoga described by sage Patanjali.

Hypertension is characterised by cognitive deficits. As evidence for impaired psychomotor speed, including slower reaction times.Since lifestyle related diseases such as coronary artery disease, obesity and hypertension are alarmingly on the rise in our modern society, yoga based lifestyle should be given a special place in preventing and managing these diseases.

Reaction time (RT) is the elapsed time between the presentation of a sensory stimulus and the subsequent behavioural response. Simple reaction time is usually defined as the time required for an observer to detect the presence of a stimulus. It is a physical skill closely related to human performance. It represents the level of neuromuscular coordination in which the body through different physical, chemical and mechanical processes decodes visual or auditory stimuli which travel via afferent pathways and reach the brain as sensory stimuli.

It is already proved that the coronary artery disease patients with yoga intervention for 1 year and demonstrated that yoga based lifestyle modification helps in regression of coronary lesions and improvement in myocardial perfusion. This translated into clinical and symptomatic improvement.

So, this study is needed to give awareness in hypertensives to practise yoga and also the clinicians should promote their patients to give prime importance to yoga in today's lifestyle.

In this study the reaction time for visual and auditory sensory stimuli is compared in hypertensives practising yoga and not practising yoga. As,much studies are done in normotensive and hypertensive subjects,this is the only study where hypertensives are compared with respect to yoga practises.

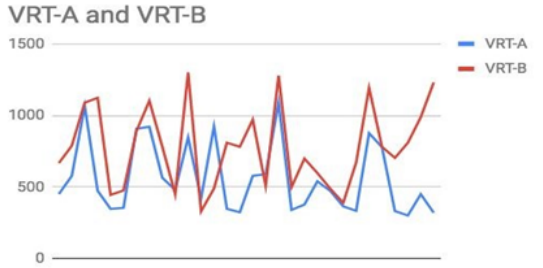
RESULTS

The Unpaired t test were applied for VRT. The two-tailed P value equals 0.0023.(CI 95%).By conventional criteria, this difference is considered to be very statistically significant.

Data:

Group	Group A	Group B
Mean	558.7343	777.9307
SD	245.5073	285.2288
SEM	44.8233	52.0754
N	30	30

Comparison of Visual Reaction Time between Group A and Group B



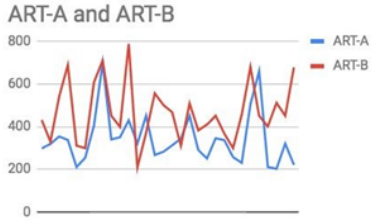
The Unpaired t test were applied for ART.

P value and statistical significance:The two-tailed P value equals 0.0004 (CI-95%).By conventional criteria, this difference is considered to be extremely statistically significant.

Data:

Group	Group A	Group B
Mean	341.7390	467.1047
SD	119.0146	140.3261
SEM	21.7290	25.6199
N	30	30

Comparison of Auditory Reaction Time between Group A and Group B



Discussion

Hypertension is characterised by cognitive deficits. As evidence for impaired psychomotor speed, including slower reaction times than normotensive subjects.Hypertension is also characterised by decreased blood flow with inadequate tissue perfusion which in turn affects the tissue functioning.

It is already proved that the coronary artery disease patients with yoga intervention for 1 year and demonstrated that yoga based lifestyle modification helps in regression of coronary lesions and improvement in myocardial perfusion.Functional Deafferentation means a decrease in distracting stimuli to visual cortex , hence, increases focus and attention.

PET, SPECT & fMRI allow examination of changes in regional blood flow, metabolism or receptor responsible for activation in the brain in response to various tasks

Significant signal increases were observed in the dorsolateral prefrontal and parietal cortices, thalamus, hippocampus / parahippocampal , temporal lobe, occipital lobe, pregenual anterior cingulate cortex, striatum, and pre- and postcentral gyri during meditation.

This indicates that the practice of meditation and yoga activates neural structures involved in attention and control of the autonomic nervous system.

CONCLUSIONS

We can say that the present study, therefore, indicated that yoga has potential for strengthening of neurocognition in people with cardiovascular risk factors and if practised extensively it can be very helpful with no side effects as a cost effective tool to reduce the morbidity in hypertensives.

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