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Study Of Role Of Cardiovascular Sympathetic Nervous System In Menopausal Women's.

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ABSTRACT

The autonomic nervous system controls most of the visceral functions of the body through the sympathetic and parasympathetic nerve fibers. In women the withdrawal of the hormones in the premenopausal and the menopausal period gradual. This study was undertaken on human female postmenopausal subjects above the age of 50 years. This study was aimed to assess the physiological cardiovascular sympathetic autonomic function tests in them. The parameters recorded and tests used were pulse rate, blood pressure orthostatic tests and handgrip test. Our findings shows that increased activity of sympathetic nervous system this is because of the change in sex hormone levels in menopause.
Keywords: Sympathetic nervous system, Menopausal women.

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INRODUCTION

Menopause is the permanent cessation of menstruation due to loss of ovarian functions. The human ovaries became unresponsive to gonadotropins with advancing age and their function declines. So that, sexual cycles disappear (Menopause). This unresponsiveness is associated with and probably caused by a decline in the number of primordial follicles which becomes precipitous at the time of menopause [1].

A woman, in her reproductive period gradually transcends into perimenopause and later after a couple of years into menopause. The autonomic functions are altered, which is due to the gradual withdrawal of the hormones and decline in the physical function due to aging [2].

Menopause occurs between the ages of 45-55 years in many women's. Menopausal symptoms is that a hormone causes added stress on the body. The women's glandular system can react by having occasional 'hot flashes' of adrenal activity which are most annoying though they are not harmful as far as medical science knows. This might be called the stress theory of menopause which is also essentially correct. Much contemporary interest in menopause is actually directed at the post-menopause and the medical illness common to post-menopausal women that may be affected by endogenous/exogenous hormone, e.g. Osteoporosis, Coronary heart disease, Endometrial cancer, Alzheimer's disease, mood symptoms and the vasomotor symptoms like hot flashes and night sweat. The vasomotor symptom suggest alteration of either cardiovascular reflexes or the local control of blood flow to skin i.e. on alteration of autonomic heamodynamic control.

Menopause is a non-reproductive phase of life in women, where the production of ovarian hormone gradually decreases [3, 4]. Alterations in autonomic nerve functions often develop in these group of women's that commonly affect cardiac vagal control and usually associated with sympathetic hyper activity [5].

The present study has been done to assess involvement of cardiovascular sympathetic nervous system in post-menopausal women's.

MATERIAL AND METHODS

The study was conducted on 32 post-menopausal female subjects above the age of 50 years.

Selection of the subjects was done on the basis of detail medical menstrual history and general physical examination. Each subject was in good physical and mental state of well-being.

Subjects with history of surgical menopause, alcohol intake, and clinical signs of structural cardiovascular disease were excluded from the study. The aim and objectives of the study was explained to each of the subject in detail. A thorough clinical examination of all subject were done. Height and weight of each subject were done. Sympathetic nerve function of each of the subject was evaluated by two cardiovascular reflex test. Orthostatic test estimates systolic blood pressure response after sudden standing from lying position and handgrip measures diastolic blood pressure response to sustained handgrip [6]. Data obtained were analyzed to provide percentile norms and correlation co-efficient between the parameters.

RESULTS

Mean resting systolic blood pressure and diastolic blood pressure were significantly higher ($P < 0.001$) in post-menopausal women.

Fall in systolic blood pressure after standing was significantly ($P < 0.001$) higher and rise in diastolic blood pressure after sustained hand grip was significantly ($P < 0.001$) lower in post- menopausal women.

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Table 1: Comparison Of Various Parameters In Post Menopausal Women

PARAMETERS	BLOOD PRESSURE	n= 30 Mean ± SD	P VALUE	RESULT
Pulse rate / min	---	79.28 ± 5.79	P > 0.05	Not significant
Blood pressure in supine (mm of Hg)	SBP DBP	1343.43 ± 24.8 77.86 ± 10.61	P < 0.01 P > 0.05	Highly significant Not significant
Blood pressure in standing (mm of Hg)	SBP DBP	131.86 ± 25.06 82.43 ± 10.64	P < 0.05 P < 0.01	Significant Highly significant
Blood pressure before hand grip (mm of Hg)	SBP DBP	132.57 ± 22.16 79.07 ± 11.85	P < 0.01 P < 0.05	Highly significant Significant
Blood pressure after hand grip (mm of Hg)	SBP DBP	144.86 ± 22.07 87.43 ± 11.80	P < 0.01 P > 0.05	Highly significant Not significant

DISSCUSSION

We have studied the cardiovascular sympathetic function test in post- menopausal women. Sympathetic nervous system is the regulatory mechanism of cardiovascular system. The ANS is one of the parts of the nervous system. It is responsible for maintaining constant internal environment or homeostasis along with the help of endocrine and immunological system. The ANS is very important in daily life [7-8].

Autonomic nervous system abnormality may clinically manifest as hyperkinetic circulation characterized by elevation in heart rate and blood pressure. Loss of cardiovascular reflexes causes tachycardia at rest. Cardiac vagal tone is well known to decrease with increasing age.

Increase in sympathetic nervous system activity with age, increase in plasma epinephrine and norepinephrine in elderly [9].

Post-menopausal estrogen administration suppresses sympathetic nervous system activity [10].

This suggest that sympathetic autonomic neuropathy occur in menopausal women. These changes are due to drastic changes in female sex hormone after the menopause. These results explain the involvement of hypothalamo – hypophysial target gland axis especially involving adrenal gland. The Pranayama, Kapalbhati and specific Yogasana's can prevent the cardiovascular sympathetic complications in post-menopausal women [10].

CONCLUSION

Our findings show that increased activity of sympathetic nervous system this is because of the change in sex hormone levels in menopause.

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