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Research Article

ASSESSMENT OF EXPIRATORY CAPACITY IN POST MENOPAUSAL WOMEN

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ABSTRACT

Aim: To assess expiratory capacity in postmenopausal women between age group of 45-55 yrs
Background: Menopause causes reduction in expiratory capacity. Peak flow meter has been used to assessed the expiratory capacity.
Methodology: It was an observational study. Total 60 one-year postmenopausal women with normal BMI (20-24.9kg/m2) between age of 45 -55 years were selected. Peak flow meter was use to assess the expiratory capacity in post-menopausal women.
Results: Among the surveyed women, 73% women had affected expiratory capacity while 27% not had affected expiratory capacity.
Conclusions: At the end of the study, we concluded that expiratory capacity gets reduced in post menopause women

INTRODUCTION

Expiratory capacity is total amount of air which can be breathed out or expired after normal inbreathing. Expiratory capacity is equal to tidal volume plus expiratory reverse volume. Expiratory capacity is 1.5 liters.

Menopause means permanent cessation of menstruation at the end of the reproductive life due to loss of ovarian follicular activity. It is the point of time when last and final menstruation occurs. The age of menopause ranges between 45-55 years.Post menopause is the phase of life that comes after the menopause.

Symptoms of Menopause:Hot flashes, Relaxation of the pelvic muscles, Cardiaceffect, Hairgrowth, Mental health Primary organ changes in postmenopausal women are:shrinking of ovaries size, fallopian tubes atrophy, uterus becomes smaller, vagina becomes narrower, vulva atrophy. The menopausal transition implies a series of hormonal and metabolic changes. As ovarian function decreases and fertility disappears, circulating estrogen levels are first increased and then decreases [(2)]

Sex hormones plays an important role in women's lung health. It has also been observed that there is a close relationship between female sex hormones and lung function in postmenopausal women. [(5)]
Menopause is associated with profound changes in the activity of the hypothalamo-pituitary-gonadal axis: as 17β-estradiol production in the ovaries ceases, follicle stimulating hormone (FSH) and luteinizing hormone (LH) concentrations rise. [(3)]
There is significant role of reduced levels of sex hormone in deterioration of lung function, as in post-menopausal women there is low level of 17b-estradiol which is associated with increase in lung inflammation. [(3)]

Experimental Section

MATERIALS AND METHODS

Study Design: It was an observational study with the duration of 1 year and was done in metropolitan city.

Sample Design: Convenient sampling was done with the sample size of 60 and sampling population were 1-year post-menopausal women.

Material Used: Peak flow meter, one standard chair (with arm rest), Weighing machine, measuringtape, Paper, Pen were used during the study.

Inclusion Criteria: Subjects willing to participate in the study 1 year postmenopausal women with normal BMI (20-24.9kg/m^2) between age group of 45-55 years.

Exclusion Criteria

- Women with hysterectomy
- Women with hormone replacement therapy

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- Women with pre-existing respiratory or cardiovascular disorder
- Women with history of smoking.
- Women on exercise program.
- Women with psychological illness.

Procedure

Women willing to participate were included in the study and they were screened as per the inclusion and exclusion criteria. Women with post menopause were taken using Convenient sampling method.

Before starting the study, a written informed consent was taken of each subject in the language best understood by them. Demographic data of the subjects (Name, age, gender, height, weight) was taken. Method of using peak expiratory flow meter was explained to the subjects

- Stand up straight.
- Take a deep breath. Fill your lungs all the way.
- Hold your breath while you place the mouthpiece in your mouth, between your teeth. Close your lips around it. Do not put your tongue against or inside the hole.
- Blow out as hard and fast as you can in a single blow. Your first burst of air is the most important. So, blowing for a longer time will not affect the result.
- Move the marker to bottom repeat all the step for 2 more times.

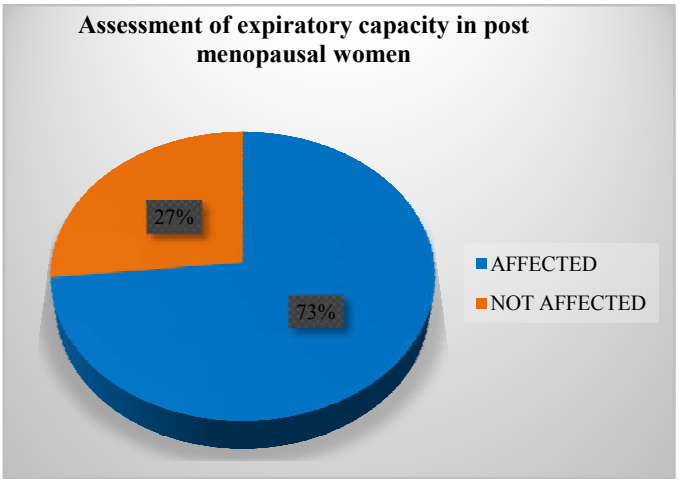
Subjects were asked to perform it three times and best of three reading was taken. Accordingly, readings of each subject were noted. Interpretation was made by comparing it to normal range of peak expiratory flow rate according to weight and height. [7] The data was collected and analyzed and results were prepared.

RESULTS AND DISCUSSION

Result

Demographic data of age and BMI

WOMEN	MEAN	SD
AGE	50.05	±3.25
BMI	22.42	±1.72



Graph 1

WOMEN	PERCENTAGE
AFFECTED	73%
NOT AFFECTED	27%

DISCUSSION

In the postmenopausal years, all women experience physical effects of aging. The most important changes occurring in postmenopausal women are due to the weakening of ovarian function. These changes can include serious health conditions such as osteoporosis, heart disease, urogenital prolapse with urinary incontinence, and others. [4]

The aim of the study was to assess the expiratory capacity in post-menopausal women between the age of 45-55 years. The sample consisted of 60 females, age averaging 50.05 (±3.25). To assess expiratory capacity of participants peak flow meter using was explained to subjects and accordingly readings were noted for each subject.

The results of the study showed that out of 60 females ,44 showed affection in expiratory capacity (73% of women are affected) and remaining 16 not showed affection in expiratory capacity (27% of women are not affected.)

Various studies have identified lung function are affected in post-menopausal women due to reduce in estrogen level after menopause. Recent evidence indicates that Pulmonary function of post-menopausal women especially, peak expiratory flow rate and forced expiratory volume in 1 second are reduced compare to menopause women. [1]

There is close relation of female sex hormones and lung function in post-menopausal women. Deteriotion of lung is observed more after menopause. Estrogen deficiency after menopause accelerated adverse effects of biological aging on lung mechanics in post-menopausal. [5]

Francisco *et al* (2008), A study was done to investigate whether the menopausal transition is related to lung function and asthma and whether body mass index (BMI) modifies associations which concluded that menopause is associated with lower lung function and more respiratory symptoms, especially among lean women. [2]

CONCLUSION

Thus, our study to assess expiratory capacity in post-menopausal women concluded that there was reduced expiratory capacity in post-menopausal women.

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