

CORONARY HEART DISEASE AND NECK CIRCUMFERENCE CORRELATION IN ADULTS: A CENTRAL RAJASTHAN STUDY

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Abstract

Background: Coronary Artery Disease is on the nail accelerating in generality across the globe. It would be beneficial to identify a category of uncomplicated and dependable indicators for identifying people at risk of CHD in earlier former stages. Neck circumference has been described as a gauge of risk for disease of the system. **Materials& Methods:** The research consisted of population of 500 cases in which 250 subjects were diagnosed with CHD and 250 without CHD. **Conclusion:** Mean neck circumference was high in CHD as compared to control of both genders; ranging from 37.26cm while control was 31.29cm.

INTRODUCTION

Neck circumference has been described as gauge of risk for disease of the system.^[1,2] An outcome in metabolic abnormalities of obesity of upper body is more vigorously correlated with cardiovascular risk. The neck circumference as a measure of distribution of fat has delineated to carry a higher predictive value for cardiovascular factor of risk.^[3]

Metabolic syndrome and body obesity are a collection of conditions allied with hypertension and are contemplated as risk prone factors for coronary heart disease which is associated with an upraised risk for stroke as well as early mortality. Ben-Noun et al. tested a technique to recognize stout or obese patient uniquely by calculating the circumference of neck. It expresses that higher neck circumference is connected firmly with the elements of the metabolic syndrome and hence likely to increase the chance of coronary heart disease (CAD).^[4,5]

MATERIALS AND METHODS

Research consisted of 500 subjects out of which 250 were patients of CHD and 250 were control without CHD. Informative and ethical approval was obtained.

Inclusion Criteria

Individual with no morphologically and structurally identifiable deformities or physical anomalies.

Exclusion Criteria

1. Subject with neck swelling, thyroid disease or malignancies.
2. Subject excluded because of their unsuitability for investigations, if they had inflammation, trauma or surgery.

Measurement of Neck Circumference: It was measured from the level of the upper margin of the thyroid cartilage.

In men having a laryngeal prominence (Adam's Apple) measurements were taken from below the prominence. On accordance to make the precise measurement, neck circumference was measured twice and the mean calculated. The cessation level was used for NC determined values were $NC \geq 37$ cm for men and ≥ 34 cm for women as indicator of obesity.

Diagnostic Standard Norms: CAD was specifically by myocardial infarction with any grade of stenosis, $>50\%$ stenosis is greater than one epicardial branch as shown by the coronary angiography. Subjects who did not have CAD were those without stenosis in any branch.

Study analysis on severity of coronary artery stenosis conducted by 2 expert readers. Risk factors for CAD such as hypertriglycedemia, hypertension, diabetes mellitus and smoking were noted.



Figure 1: Procedure of Measurement Neck Circumference

Table 1: Distribution of subjects according to Sex

Sex	CHD Group		Control Group		P- Value
	n	%	n	%	
Male	126	50.4	125	50	0.53
Female	124	49.6	125	50	

Table 2: Distribution of Subjects according to N. C

SEX	CHD Group n=250	Control Group n=250	p-value
Mean± SD	37.26 ±4.58	31.29±2.24	< 0.001

RESULTS AND DISCUSSION

The neck circumference of CHD group was found to be remarkably greater than the control participants. NC acts as indication of superior body obesity found as simplified and streamlined methodology which is used to recognize obese and overweight individuals.^[6] It is seen that Neck Circumference is 37.26 cm in males and Neck Circumference is 31.29 cm in women is likely have a lower body mass index. People with greater values have a broad assessment of their obese and overweight status. A higher relationship between cardiovascular risking factors and NC research in people with obesity.^[7] In present work the overall Neck Circumference of males was 37.26 cm of subjects with CHD while those without CHD was observed 31.29cm; In the case of Females 38.21 cm of subjects with CHD and that of 31.37 cm. This shows that the Neck circumference of males is comparatively lower than females. While that if CHD is concerned the subjects with CHD have higher neck circumference, then other control group. Positive correlation between the Neck Circumference and 2nd to 4th digit ratio where body weight is controlled and reported by B Fink, JT Manning.^[8] This alliance is observed in males not in women. This is due to the sexual differentiation design of

distribution of fat in body of both sexes. This is also showing linkage of sex-steroid hormones, therefore impacting metabolic disease and cardiovascular.^[9] Earlier research has shown that Neck Circumference is a simplified presenting element for recognition of obese and overweight patients. Positive relations between body weight and NC, and also WHR with NC while weight was under control, supported the study. Subsequently these observations were recommended that the consociations are well built in males than in females. WHR act as element for distribution of body fat which is reported to be higher prognosticative value for cardiovascular risking factors.^[10,11]

SUMMARY AND CONCLUSION

A high association between Neck Circumference and CAD risking factors are observed in obese subjects. The neck circumferences and thigh circumference are considered an index of upper- and lower-body subcutaneous tissue distribution, appropriately, in body composition 3 compartment dimensional framework. This frame is accountable in anthropometry having organ and subcutaneous fatty tissue masses constituents thin body mass also. After calibrating the body partitions, Neck Circumference,

is an index of superior-body subcutaneous fatty tissue distribution, which is positively in relation to cardiovascular risk factors.^[12] Neck Circumference acts as indicator of fat distribution of body having observed to be high anticipating to factors risking cardiovascular diseases.^[13]

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