

Prevalence of metabolic syndrome in hypertensive patients

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Introduction

- Cardiovascular disease risk factors have a tendency to cluster
- Metabolic syndrome is a constellation of multiple metabolic abnormalities centered around obesity, abnormal glucose metabolism hypertension and dyslipidaemia
- Increased risk of cardiovascular morbidity and mortality
- More aggressive approach, including lifestyle modification and drug-treatment

Objectives

- To identify the prevalence of metabolic syndrome in hypertensive patients
- To find out the characteristics of metabolic syndrome in hypertensive patients
- To assess the variety of presentation of metabolic syndrome

Methodology

Study design

Observational cross-sectional study

Place of study

Medicine OPD

M Abdur Rahim Medical College Hospital, Dinajpur
(Former Dinajpur Medical College Hospital)

Period of study

From 01 March 2013 to 31 August 2013 (6 months)

Methodology contd.

Study population

100 consecutive hypertensive patients attending Medicine OPD of MARMCH, Dinajpur

Methodology contd.

Inclusion criteria

- Adult hypertensive patients aged ≥ 20 years
- Both male and female patients
- Hypertension newly or previously diagnosed
- Gave informed written consent for the study

Methodology contd.

Exclusion criteria

- Uncontrolled DM
- Known case of CKD
- Pregnancy
- Lactation
- Treatment with steroid
- Taking OCP
- Unwilling to participate in the study

Methodology contd.

Study procedure

- BP measured using standard adult arm cuff of aneroid sphygmomanometer (ALP K2)
- Waist circumference measured in inches, height in cm and weight in kg
- Blood samples collected in the Pathology laboratory of DjMCH for glucose and lipid profile assays (HDL-C and TG) after an overnight fasting
- Lipid-lowering medication discontinued for 2 months
- Antihypertensive medications continued

NCEP: ATP-III criteria

Any 3 or more of the following criteria:

- Central obesity: WC > 40" for male and > 35" for female
- High BP: SBP \geq 130 mmHg and/or DBP \geq 85 mmHg
- High FBG: fasting blood glucose \geq 100 mg/dl (5.6 mmol/L)
- Low HDL-C: HDL-C < 40 mg/dl for male and < 50 mg/dl for female
- Hypertriglyceridaemia: fasting TG \geq 150 mg/dl

Results

Table 1: Comparison of hypertensive patients with or without metabolic syndrome

Variables	Met S	Non Met S
Systolic BP	145.2 ± 12.8	137.4 ± 12.9
Diastolic BP	96.4 ± 10.6	90.2 ± 10.7
FBG	5.8 ± 0.8	5.0 ± 0.7
HDL-C	41.7 ± 7.4	46.1 ± 6.5
TG	172.7 ± 42.5	124.2 ± 26.1
WC	37.6 ± 2.4	34.8 ± 2.3
MS score	3.6 ± 0.7	1.4 ± 0.5

Table 2: Frequency of risk factors by sex according to NCEP: ATP-III criteria

ATP-III criteria	Male (n=53)	Female (n=47)	Total (n=100)
High FBG	47.2%	44.7%	46%
Low HDL-C	45.3%	46.8%	46%
High TG	43.4%	48.9%	46%
High WC	9.4%	65.9%	36%

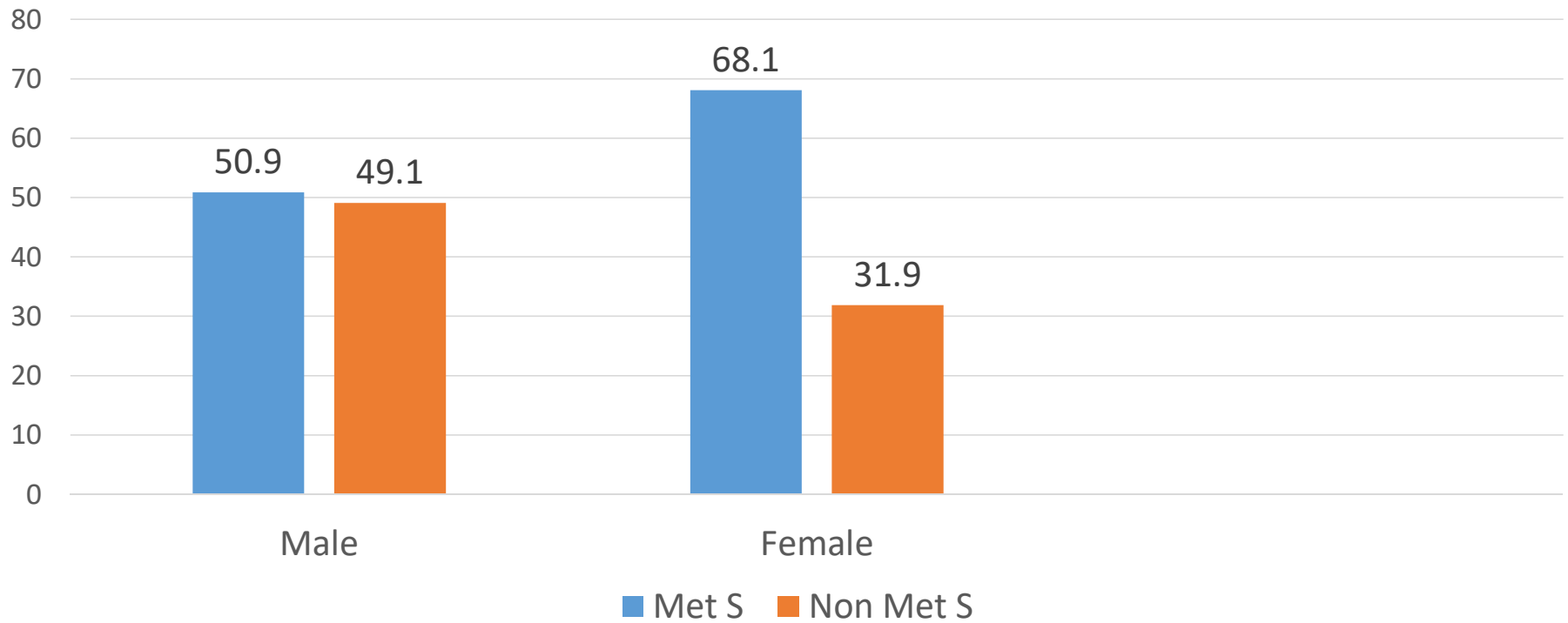


Figure 1: Prevalence of metabolic syndrome in hypertensive patients

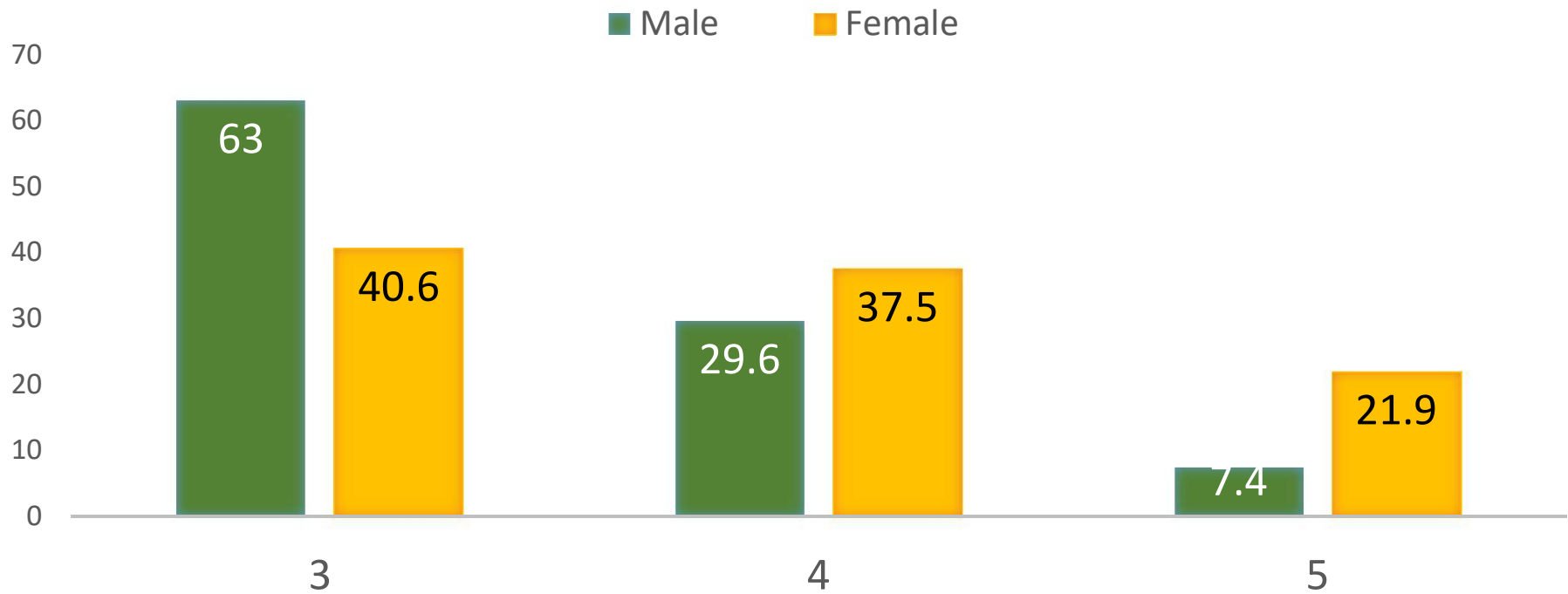


Figure 2: Frequency of components present in patients with metabolic syndrome

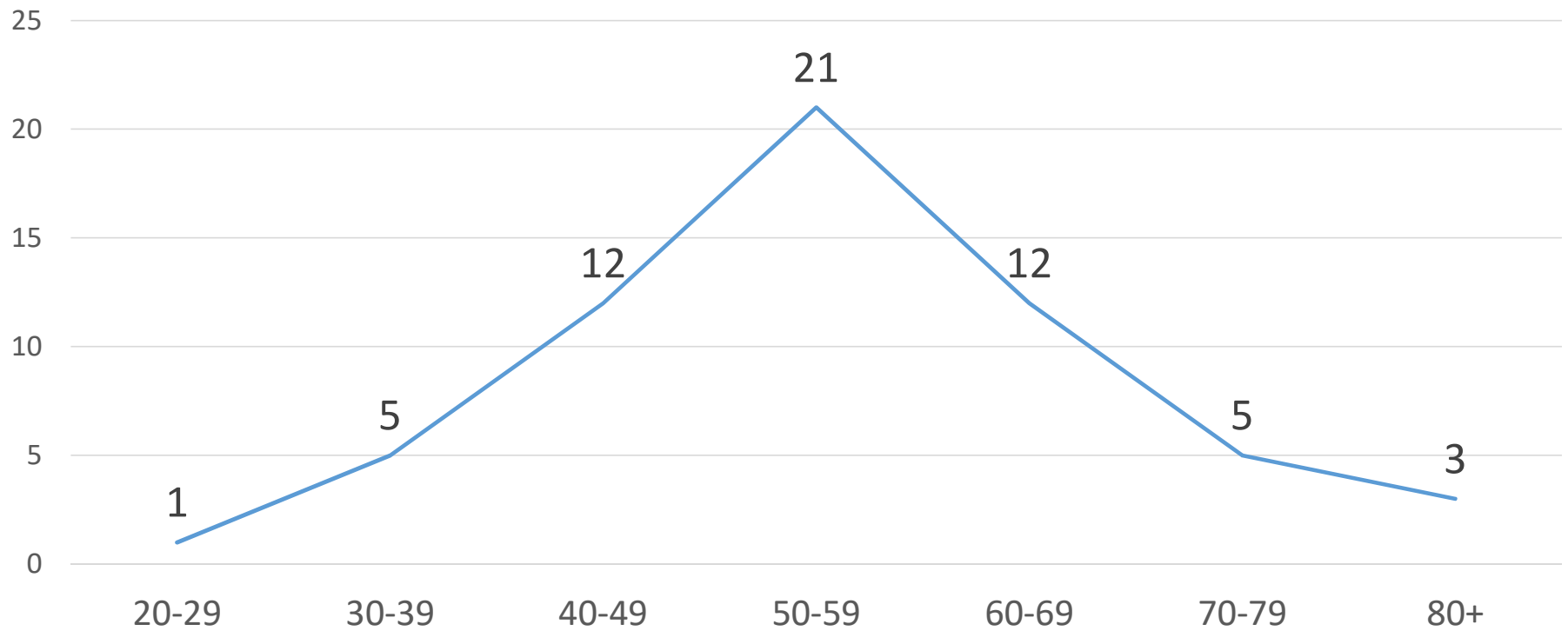


Figure 3: Frequency of metabolic syndrome in various age group

Limitations

- Small sample size
- Study conducted in a single centre – may not represent the whole population
- Study population representative of urban and semi-urban society
- Antihypertensive medications continued; β -blockers and diuretics have effects on insulin sensitivity and lipid profile

Conclusion

- Metabolic syndrome is highly prevalent in hypertensive patients
- More common in women than in men
- Increased risk of coronary and cerebrovascular diseases

Recommendations

- All hypertensive patients should be screened for other metabolic abnormalities at first diagnosis
- Large-scale and multi-centered studies need to be conducted
- Prospective longitudinal studies needed
- Effective action plan to combat metabolic syndrome and its consequences



Thank you