Poster No. P-145

SCAN FINDINGS OF ISCHAEMIC HEART DISEASE IN ADULTS AGED 30-40 YEARS OLD AS DETECTED AND EVALUATED ON MYOCARDIAL PERFUSION SCINTIGRAPHY

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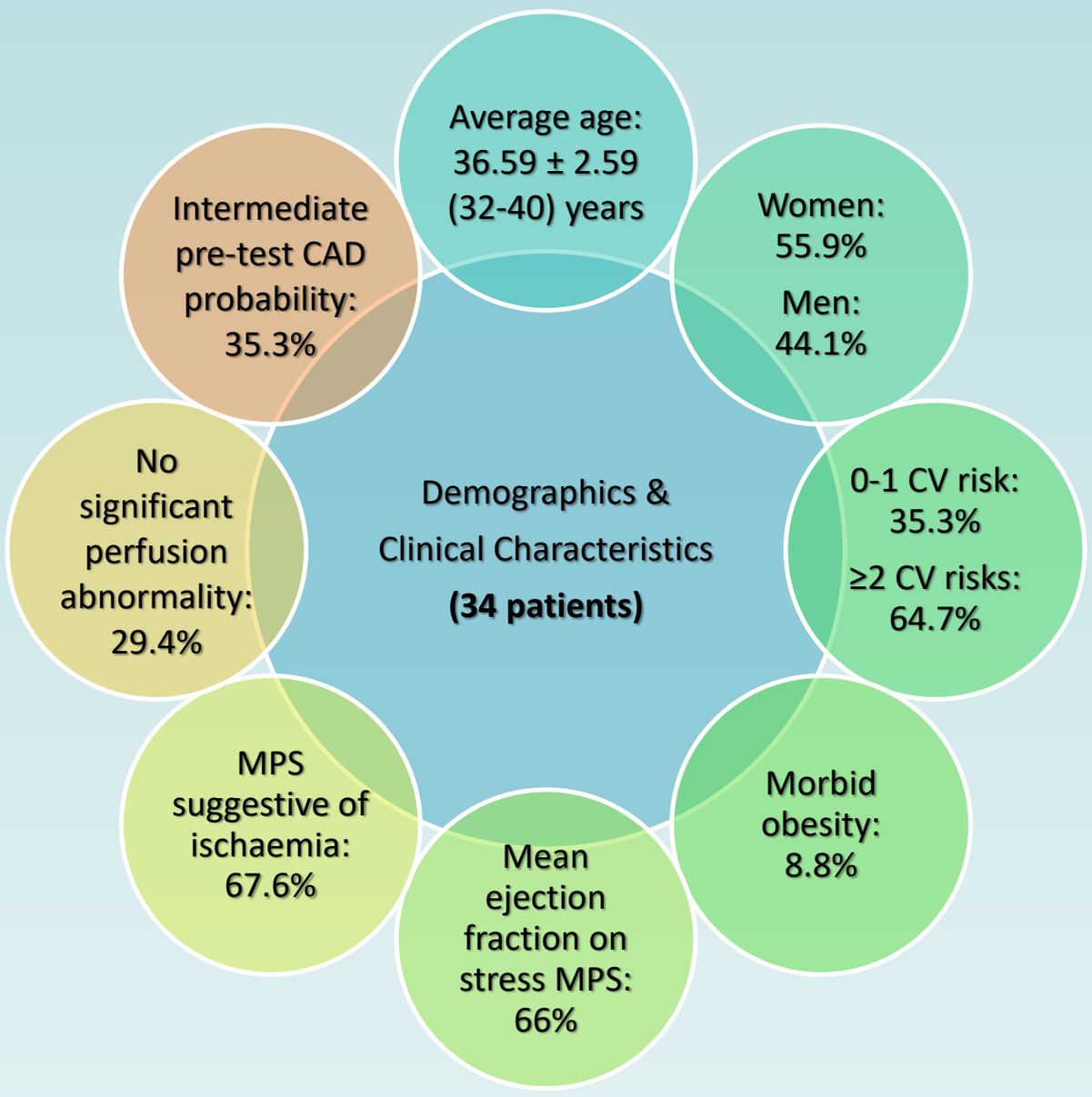
01. INTRODUCTION

- Ischaemic heart disease (IHD) is on the rise among adults under 40-years.
- Radionuclide myocardial perfusion scintigraphy (MPS) can provide imaging information to diagnose, evaluate and risk stratify IHD.
- Nevertheless, local data are limited on the usage of this technique in identifying IHD among young adult patients.
- Our objectives were mainly to determine important clinical characteristics of these patients who underwent MPS for IHD detection and highlight their scintigraphy findings.

02. METHODOLOGY

- A case-series and pictorial review of adults aged 30-40 years old (n=34) who undergone two-day protocol MPS using 99mTechnetium-tetrofosmin done between January 2019 and December 2019.
- Scan acquisition being performed as per routine standard departmental procedure in Hospital Kuala Lumpur (HKL).
- Reversible perfusion defect signified ischaemia whereas irreversible perfusion defect implied infarction.
- All clinical information and scan findings were compiled before being statistically analysed.

03. RESULTS



Cardiovascular (CV) risks include dyslipidaemia, smoking, diabetes mellitus, hypertension, strong family history for IHD and high BMI

- Patients with ≥2 CV risks and intermediate probability were significantly associated with abnormal MPS findings ($p<0.05$).
- Gender and morbid obesity showed no significant association with abnormal MPS findings as shown in the table below.

Demographics and Clinical Characteristics (n=34)		Significant Abnormal Perfusion on MPS		p-values
		No	Yes	
Gender	Female	8	11	0.068
	Male	2	13	
CV risks	0-1	8	4	*0.000*
	≥2	2	20	
Pre-test probability	Low	9	13	*0.046*
	Intermediate	1	11	
Morbid obesity	No	10	21	0.242
	Yes	0	3	

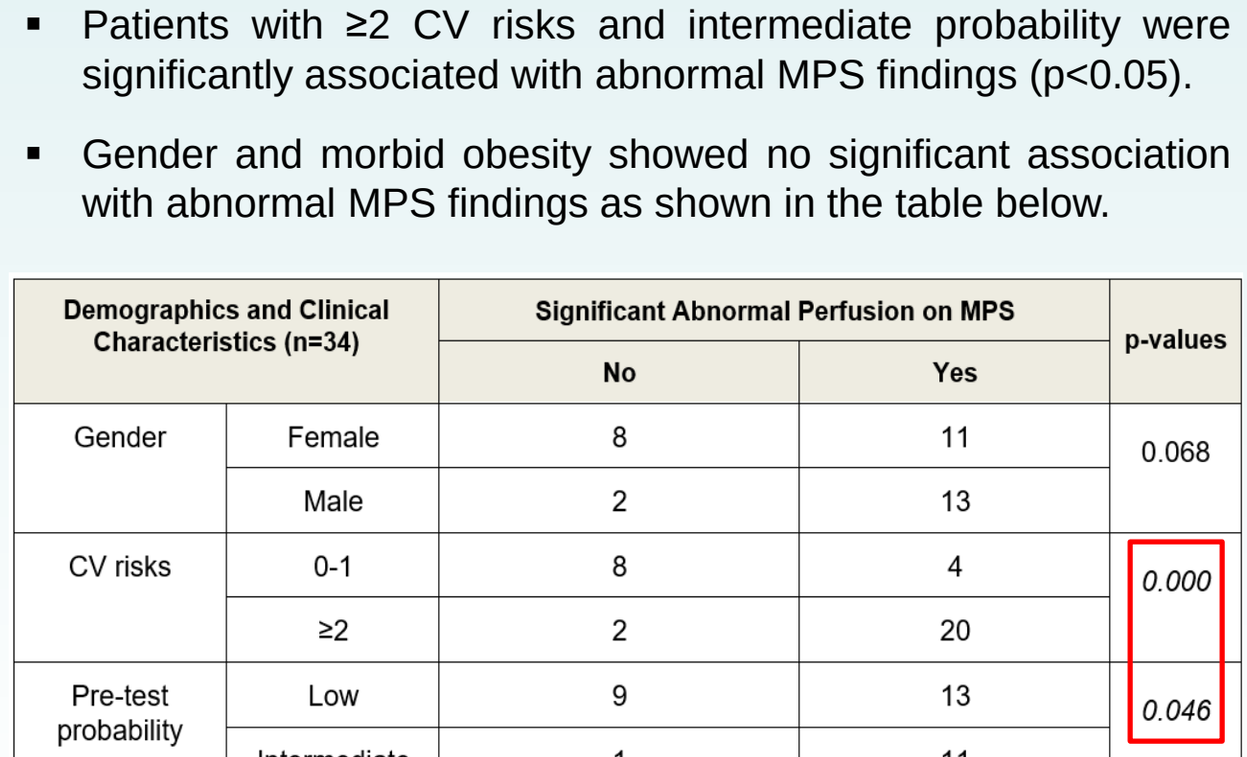


Figure 1: Example of normal MPS at stress (top row) and rest (bottom row).

04. DISCUSSION

- A prior study from a single local tertiary centre reported the prevalence of young acute coronary syndrome was 6.1% (mean age: 39±6 years). [1] Moreover, IHD was the cause of death for 16% of young sudden death cases at HKL (2012-2013) based on post-mortem CT calcium scoring. [2]
- Among relatively young population, MPS detected stress-induced ischaemia in 18.2% of patients whereby diabetes and hypercholesterolemia noted to be common independent predictors of ischaemia in both men and women. [3]
- Sella *et al* found significant association between perfusion abnormalities detected on MPS with dyslipidaemia (low HDL) and current vasculitis among females with systemic lupus erythematosus (mean age: 37±10 years). [4]
- In obese patients without known IHD, factors associated with abnormal myocardial perfusion on SPECT include diabetes, age, ventricular dysfunction, typical angina pain and inability to do physical stress. [5]
- Pre-test IHD probability served as an effective gatekeeper for non-invasive cardiac imaging. MPS for diagnosing IHD should be reserved for those with poor exercise capacity, abnormal resting ECG and intermediate or high pre-test IHD probability. [6,7]
- MPS is also useful for further risk-stratification of patients with suspected IHD and normal scan results appear to portend a benign prognosis independent from pre-test probability. [8]

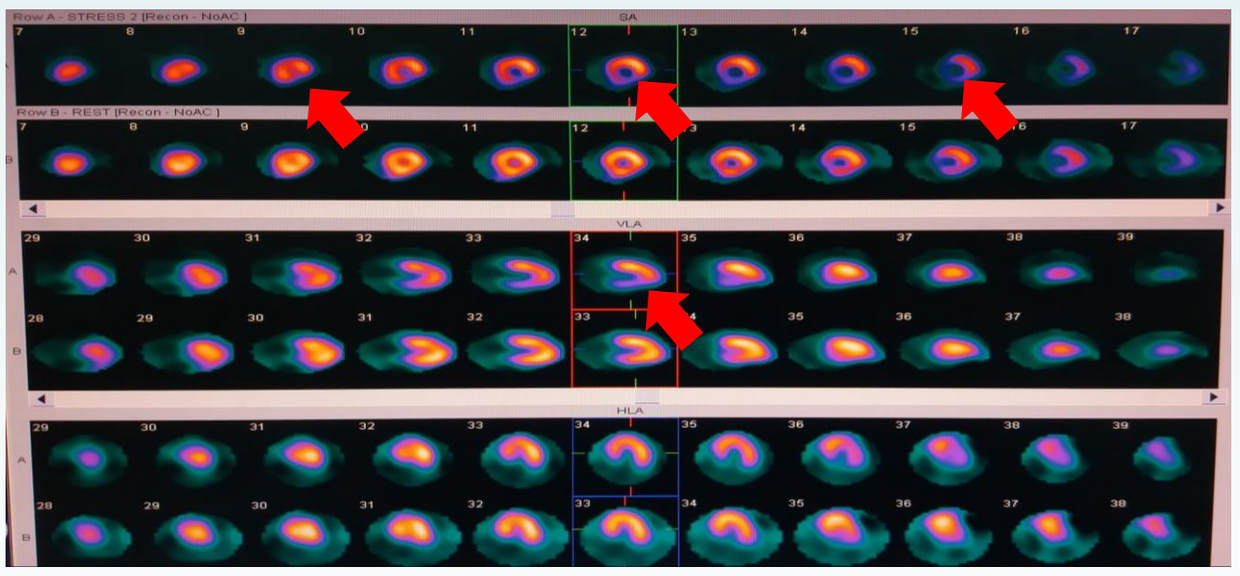


Figure 2: Example of inferolateral wall ischaemia on MPS (red arrows).

05. CONCLUSION

- IHD was observed in 70.5% of adults aged 30-40 years who were referred for MPS.
- Those with ≥2 CV risks and intermediate pre-test probability were significantly associated with abnormal MPS findings.
- Attention must be given during scintigraphy images interpretation and reporting of these specific patients.
- Young adult patients with notable risks should be managed with appropriate secondary prevention measures and further monitoring.

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