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## INTRODUCTION

According to the 2019 European statistics, 4.1 million deaths in Europe are caused by cardiovascular disease, with ischaemic heart disease (IHD) being a leading cause of mortality.<sup>1</sup>

The European Society of Cardiology (ESC) guidelines for the management of dyslipidaemias recommend a target low density lipoprotein cholesterol (LDL-C) goal of  $\leq 1.4$  mmol/L or  $\geq 50\%$  relative reduction.<sup>2</sup>

Patients with documented cardiovascular disease and elevated individual risk factors are candidates for early intervention with higher intensity statins alongside lifestyle modifications.<sup>2</sup>

## METHOD

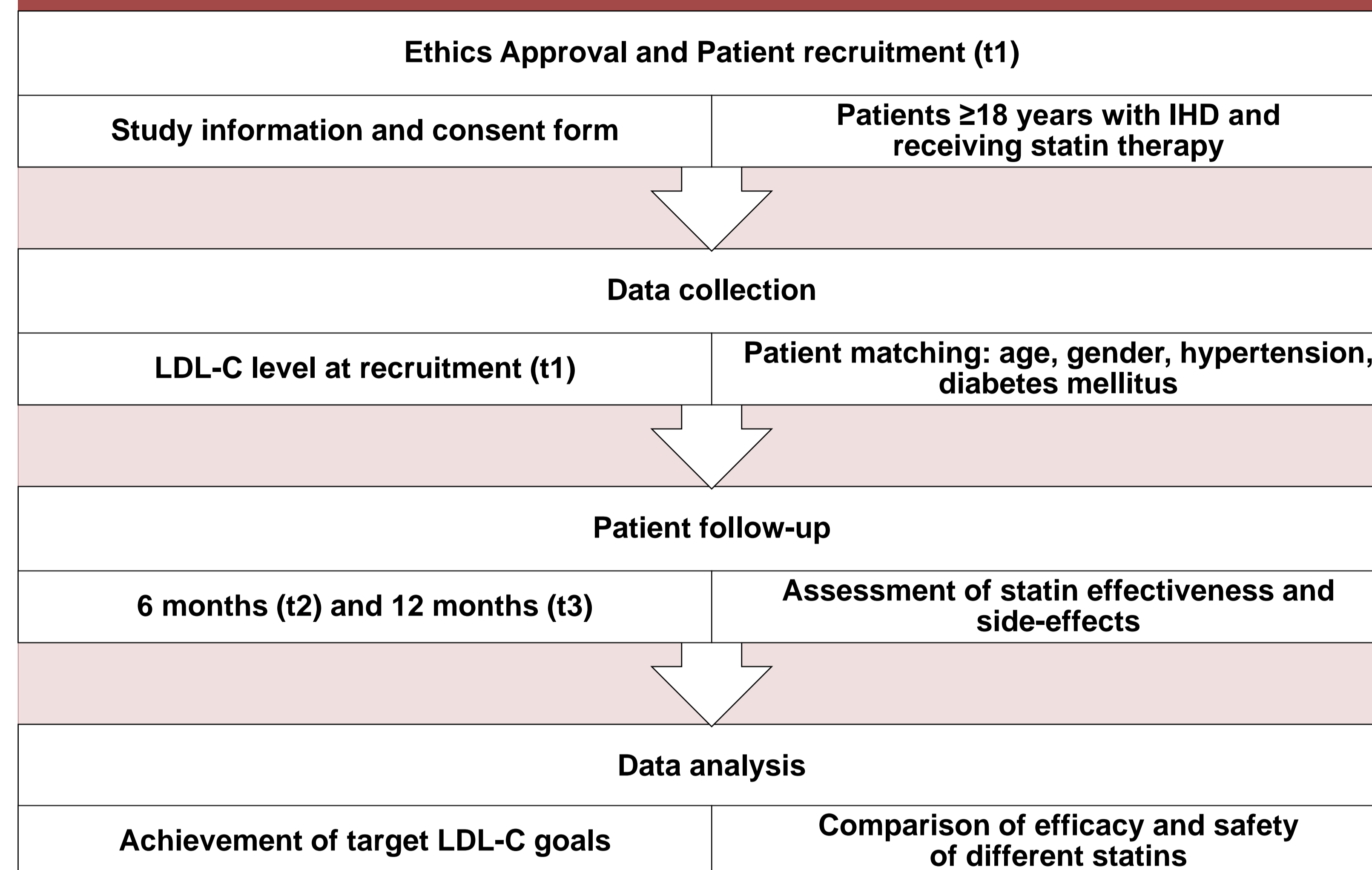


Table 1: Statin efficacy

Statin	Mean LDL-C in mmol/L (number of patients)			% reduction in LDL-C		p-value
	t1 (n=81)	t2 (n=75)	t3 (n=74)	t2	t3	
simvastatin	1.83 (34)	1.82 (20)	1.80 (18)	1	2	<0.001
atorvastatin	2.30 (39)	1.56 (48)	1.56 (44)	32	32	
rosuvastatin	2.58 (8)	1.96 (7)	1.95 (12)	24	24	

Table 2: Achievement of target LDL-C goals at t3

Statin name and dose	Patients achieving $\leq 1.4$ mmol/L LDL-C (n=24)	Patients achieving $\geq 50\%$ LDL-C reduction (n=12)
Simvastatin 40mg	5 (21%)	0
Atorvastatin 40mg	2 (8%)	0
<b>Atorvastatin 80mg</b>	<b>15 (63%)</b>	<b>7 (58%)</b>
Rosuvastatin 20mg	1 (4%)	3 (25%)
Rosuvastatin 40mg	1 (4%)	2 (17%)

## AIMS

- To compare the effectiveness of statin therapy in patients with IHD by assessing attainment of target LDL-C goals
- To analyse side-effects reported for simvastatin, atorvastatin and rosuvastatin

## SETTING

Cardiac Catheterisation Suite, Cardiac Medical Ward and Critical Cardiac Care Unit within the Department of Cardiology at Mater Dei Public General Hospital. Follow-up sessions were carried out at Cardiology Outpatients.

## RESULTS

- 81 patients were assessed at t1: 62 male, mean age 68 years, 42 with previous revascularisation
- Statin therapy at t1: atorvastatin (n=39), simvastatin (n=34), rosuvastatin (n=8)
- 17 patients underwent statin intensification and achieved similar LDL-C reduction to patients with unchanged statin status ( $p > 0.05$ )
- The lowest calculated mean LDL-C was with atorvastatin 80mg (1.56 mmol/L) and the highest percentage LDL-C reduction was also with atorvastatin 80mg (32%). Patients on rosuvastatin achieved a greater percentage reduction from t1 (24%) compared to simvastatin (2%) ( $p < 0.05$ ) (Table 1)
- Patients on simvastatin achieved negligible LDL-C reduction throughout the study
- 24 patients achieved the 1.4 mmol/L target goal and 12 patients achieved  $\geq 50\%$  relative reduction with high-intensity statins (Table 2)
- 11 cases of myalgia were reported; simvastatin (n=9) and rosuvastatin (n=2); renal dysfunction was recorded in 7 patients on atorvastatin and 3 patients on simvastatin; 3 cases of deranged liver function tests were documented with simvastatin

## CONCLUSION

- After 12 months, the high-intensity statins atorvastatin 80mg and rosuvastatin 20-40mg were associated with the greatest LDL-C reduction from baseline
- Statin intensification resulted in a consequently larger mean LDL-C reduction
- Atorvastatin and rosuvastatin have safer side-effect profiles compared to simvastatin
- Only 30% of the study population achieved the LDL-C target goal of 1.4 mmol/L
- A more intensive LDL-C lowering regime is required to attain targets recommended in ESC guidelines<sup>2</sup> and to reduce cardiovascular risk

## REFERENCES

<sup>1</sup> Timmis A, Townsend N, Gale CP, Torbica A, Lettino M, Petersen SE, et al. European Society of Cardiology: Cardiovascular Disease Statistics 2019. Eur Heart J. 2020;41(1):12-85.

<sup>2</sup> Mach F, Baigent C, Catapano AL, Koskinas KC, Casula M, Badimon L, et al. 2019 ESC/EAS Guidelines for the management of dyslipidaemias: lipid modification to reduce cardiovascular risk. Eur Heart J 2019;290:140-205.