

Hypercholesterolaemia in the Irish Adult population: A Cross-Sectional Study

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Introduction

Raised serum cholesterol is an important modifiable risk factor for the development of cardiovascular disease (CVD). A reduction in total cholesterol of 1 mmol/L is associated with a 33% reduction in ischaemic heart disease mortality in those aged 50-69 years and a 17% reduction in those aged 70-89 years.¹

The aim of this study is to describe the distribution of serum cholesterol in a community living population of older adults in Ireland aged 50-79 years and to examine the awareness, treatment and control of hypercholesterolaemia in a subgroup aged 50-64 years according to their CVD risk status.



Methods

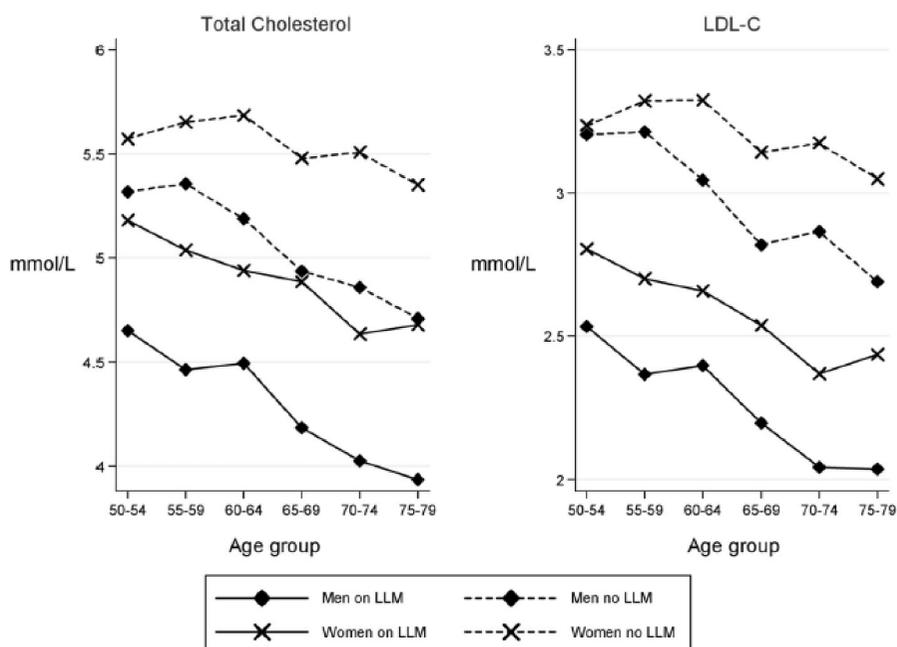
This study uses nationally representative cross-sectional data from the baseline wave (2009-2011) of the Irish Longitudinal Study on Ageing (TILDA). Home-based interviews and health assessments were conducted. Self-report of a doctor's diagnosis of CVD and diabetes and smoking status were recorded. Non-fasting blood was drawn and blood pressure was measured during the health assessment.

Total cholesterol was measured and Low-Density Lipoprotein Cholesterol (LDL-C) was calculated using the Friedewald formula. CVD risk in those without CVD or diabetes was calculated using the Systematic Coronary Risk Estimation (SCORE) 'low' risk country equations.² Hypercholesterolaemia was defined as a LDL-C in excess of the recommended CVD risk category target as outlined in the European Society of Cardiology guidelines (Table 1)³ and/or on lipid lowering medication (LLM).

Results

The household response rate to the baseline TILDA survey was 62%. Of the 8175 adults who participated, 7537 were aged between 50 and 79 years. Of these, 70.1% (n=5287) took part in the health assessment and had complete risk factor data available for analysis. Those excluded from the analysis had less favourable risk factor profiles.⁴

Findings reveal a weighted mean TC of 5.1 mmol/L (95% CI 5.0-5.1 mmol/L) and a mean LDL-C of 2.9 mmol/L (95% CI 2.8-2.9 mmol/L) in those aged 50-79 years. LLM was used by 33.9% (95% CI 32.3-35.4%). In those not on LLM the weighted mean TC and LDL-C peaked in men aged 55-59 years and in women aged 60-64 years (Figure 1).



LDL-C: Low-density lipoprotein cholesterol

Figure 1: Weighted mean total cholesterol and LDL cholesterol according to sex, age group and lipid-lowering medication status (TILDA wave 1, 50-79 years, n=5287)

A high proportion of participants 88.9% (CI 87.8-89.9%) reported ever having a blood test for cholesterol. Almost half of those aged 50-79 years (44.8%, 95% CI 43.3-46.3%) had a TC <5mmol/L and just over half (51.3%, 95% CI 49.8-52.8%) had an LDL-C <3mmol/L.

In the subgroup aged 50-64 years (n=3227), 73% (95% CI 71.5-74.5%) were hypercholesterolaemic.

Examination of those with hypercholesterolaemia (n=2357) revealed a varied picture in relation to awareness, treatment and control of LDL-C according to disease status and SCORE risk category (Figure 2).

Table 1: LDL-C targets according to disease status or CVD risk³

Disease or SCORE risk category	Target LDL-C mmol/L
Known CVD	<2.5
Known Diabetes	<2.5
Very high and high risk	<2.5
Moderate risk	<3.0
Low risk	<3.0

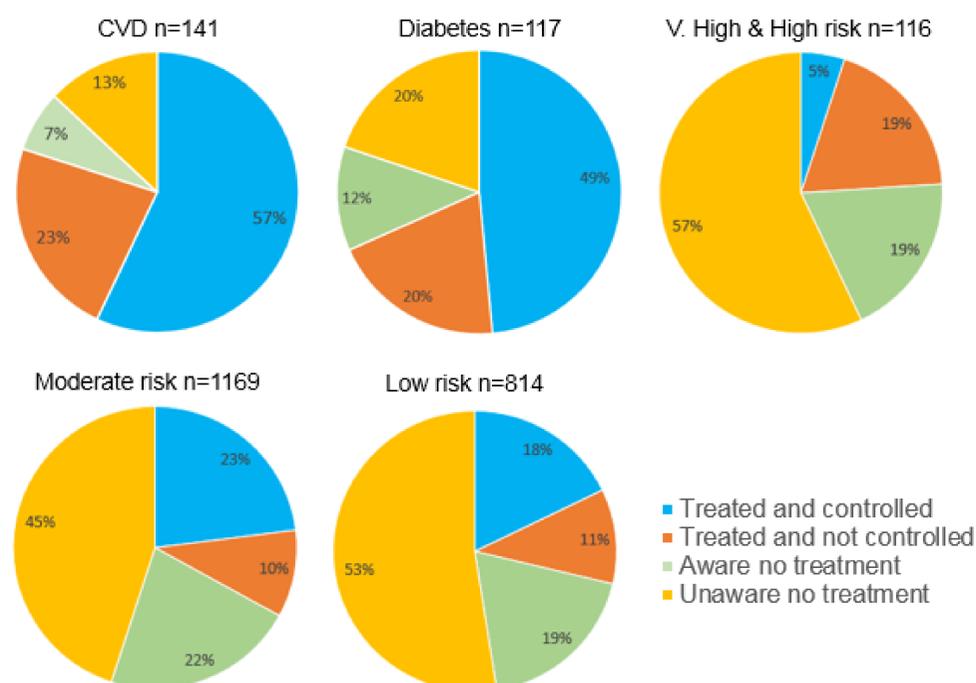


Figure 2: Awareness treatment and control of hypercholesterolaemia according to cardiovascular disease and SCORE risk stratification (TILDA, wave1, 50-64 years).

Conclusion

Despite a substantial reduction in population mean TC from a high of 6.0 mmol/L (aged 35-64 yrs)⁵ in the 1980s to 5.1 mmol/L, this study reports a failure to control hypercholesterolaemia to recommended CVD risk stratified targets in the Irish adult population. In known high risk groups (CVD or Diabetes) opportunities are being missed to achieve LDL-C control as recommended in clinical guidelines. In the primary prevention category lack of awareness of hypercholesterolaemia was high across all risk stratified groups.

Recommendations for policy include continued monitoring of those at highest risk and CVD risk assessment in those perceived to be at low risk in order to inform shared decision making in relation to lifestyle modification and medication management.

Conflict of Interest: None

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