18th Gulf Heart Association Conference
November 12-14, 2026
Oman Exhibition & Convention Center
Muscat, Sultanate of Oman



POSTER PRESENTATION

Real-world effectiveness of PCSK9 inhibitors in a specialised tertiary hospital in Kuwait: a retrospective cohort study

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INTRODUCTION

- Statins are the cornerstone therapy for managing uncontrolled low-density lipoprotein cholesterol (LDL-C), with ezetimibe as an add-on for insufficient control[1].
- In 2016, proprotein convertase subtilisin/kexin type 9 inhibitors (PCSK9Is) were introduced in Kuwait for patients with persistent lipid control issues.
- Although evidence on PCSK9I effectiveness in Kuwait exists from a tertiary cardiac centre, this study was conducted at another hospital with a larger cohort, assessing both evolocumab and alirocumab across a wider range of lipid parameters.

AIM

- To examine the baseline characteristics of incident (new) PCSK9I users.
- To evaluate the the real-world effectiveness (RWE) of PCSK9Is.

METHODS

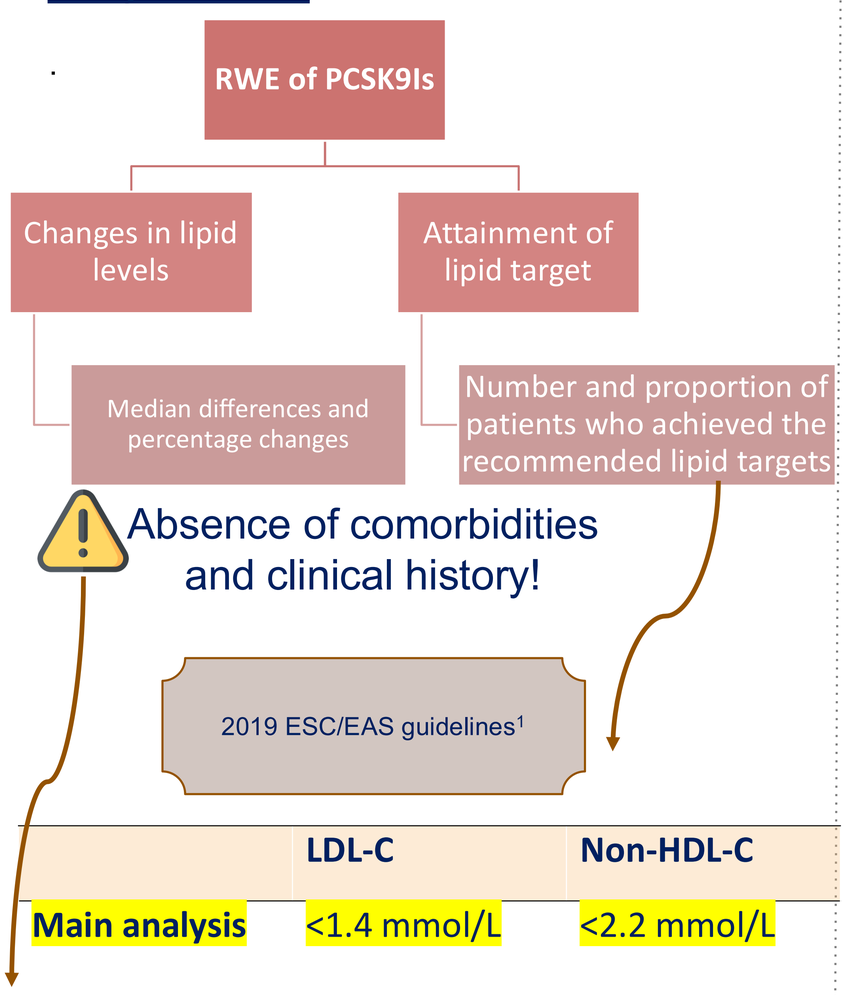
Study design & Setting

A retrospective cohort study using annual dispensing data from the pharmacy department within cardiac care centre (January 2016 and December 2022).

Exposure

- Incident users of PCSK9Is (evolocumab or alirocumab).

Study outcomes



	LDL-C	Non-HDL-C
Main analysis	<1.4 mmol/L	<2.2 mmol/L
Sensitivity analyses	<1.8 mmol/L	<2.6 mmol/L
	<1.0 mmol/L	<1.8 mmol/L

LDL-C: Low Density Lipoprotein Cholesterol; **non-HDL-C**: non-High-Density-Lipoprotein Cholesterol.

RESULTS

1. **Baseline characteristics of new PCSK9I-treated patients** (Table 1):

Table 1. Baseline characteristics of new PCSK9I users

Variables		Total patients (n= 458)
Age (years)	Mean ± SD	55.4 ± 10.9
	<55; n (%)	197 (43)
Gender, male	n (%)	316 (69)
Background lipid-lowering therapy (LLT)	None; n (%)	190 (41.5)
	Statin+ezetimibe	61 (13.3)
	Statin only	170 (37.1)
	Ezetimibe only	30 (6.6)
Agent	Evolocumab; n (%)	360 (78.6)
	Alirocumab; n (%)	98 (21.4)

2. **Percentage change in lipids following 90 days of PCSK9I initiation** (Figure 1):

- **LDL-C:** The median change (n=104) was 1.7 mmol/L, reflecting a 41.9% reduction (95% CI: -50.9% to -24.1%, *p* <0.001)
- **Non-HDL-C:** The median change (n=115) was 2.4 mmol/L, showing a 38% reduction (95% CI: -46.5% to -23.0%, *p* <0.001)

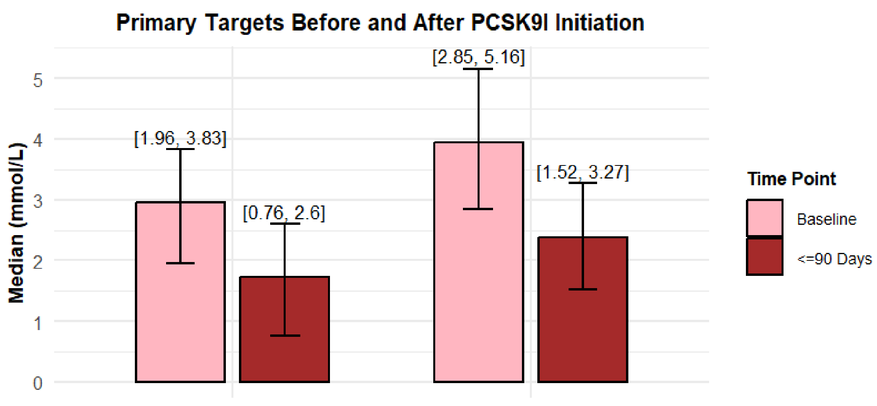


Figure 1. LDL-C and non-HDL-C levels before and within 90 days after PCSK9I initiation.

3. **Target goal attainment:**

❑ **Main analysis** (Figure 2):

- LDL-C (43%, n= 36/84) and non-HDL-C (45%, n= 42/93)

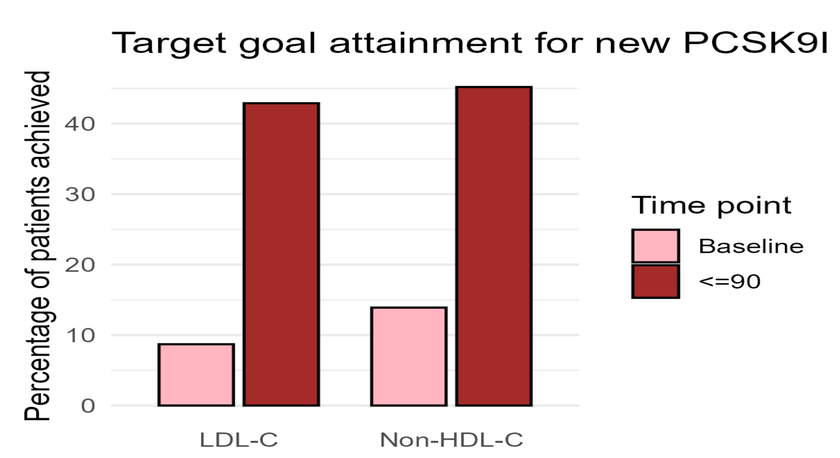


Figure 2. Target goal attainment of LDL-C and non-HDL-C before and within 90 days of PCSK9I initiation.

RESULTS (CONT.)

4. **Sensitivity analyses** (Table 2):

Table 2. Sensitivity analyses of LDL-C and Non-HDL-C targets using broader and stricter threshold

	LDL-C	Non-HDL-C
Sensitivity analyses	<1.8 mmol/L (52%)	<2.6 mmol/L (54%)
	<1.0 mmol/L (31%)	<1.8 mmol/L (29%)

LDL-C: Low Density Lipoprotein Cholesterol; **non-HDL-C**: non- High-Density-Lipoprotein Cholesterol.

CONCLUSIONS

- **RWE:** PCSK9Is achieved significant lipid reductions, but didn't fully replicate trial results (60%)[2,3].
- **Need for further research:** Comprehensive patient-level data are needed to investigate the gap betweet trial efficacy and RWE and identify opportunities to optimise lipid management.
- **Clinical and policy implications:** Integrating patient-level data into electronic health records, optimising LLT, and improving adherence to clinical guidelines may enhance dyslipidaemia management.
- **Study limitations:** Potential unmeasured confounding and incomplete comorbidity data should be considered when interpreting findings from secondary database analyses.
- **Regional contribution:** This study adds valuable Kuwaiti real-world evidence to the limited literature on PCSK9I use in the Gulf region.

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ACKNOWLEDGEMENTS

- We would like to express our gratitude to the MOH for their support in facilitating this study.
- Special thanks are extended to the heads and staff of Al-Dabbous cardiac centre for their cooperation and assistance throughout the data collection process.