Only thirty percent (30%) of patients on PCSK9 inhibitors achieve ESC/EAS LDL-Cholesterol (LDL-C) guideline target of LDL-C < 1.8 mmol/L in a specialist lipid clinic

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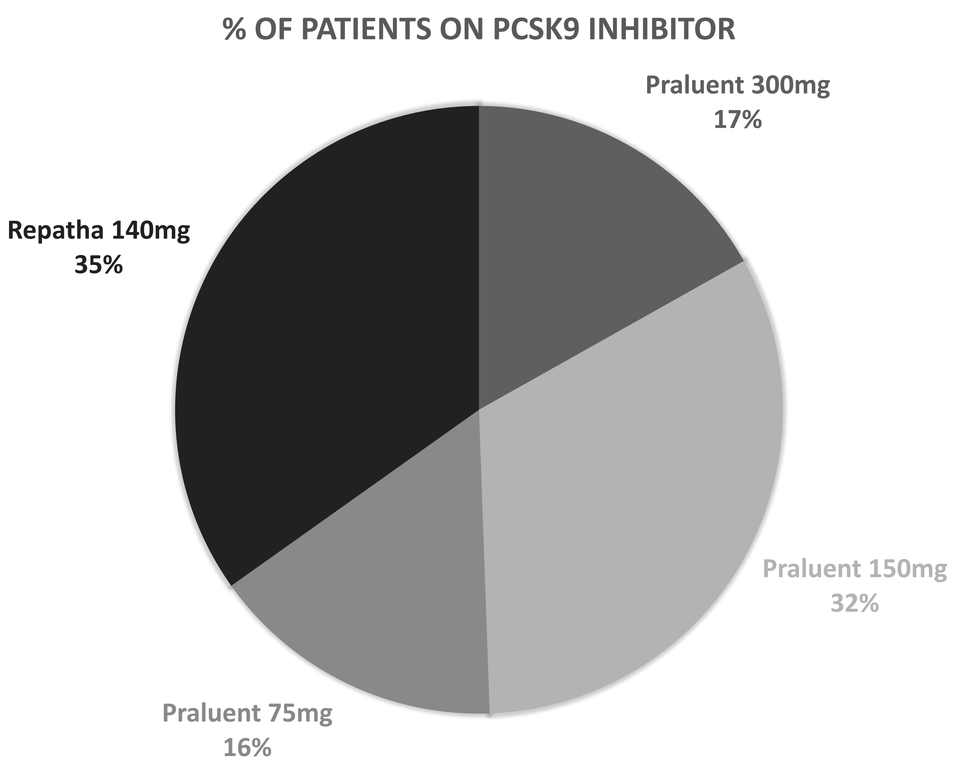
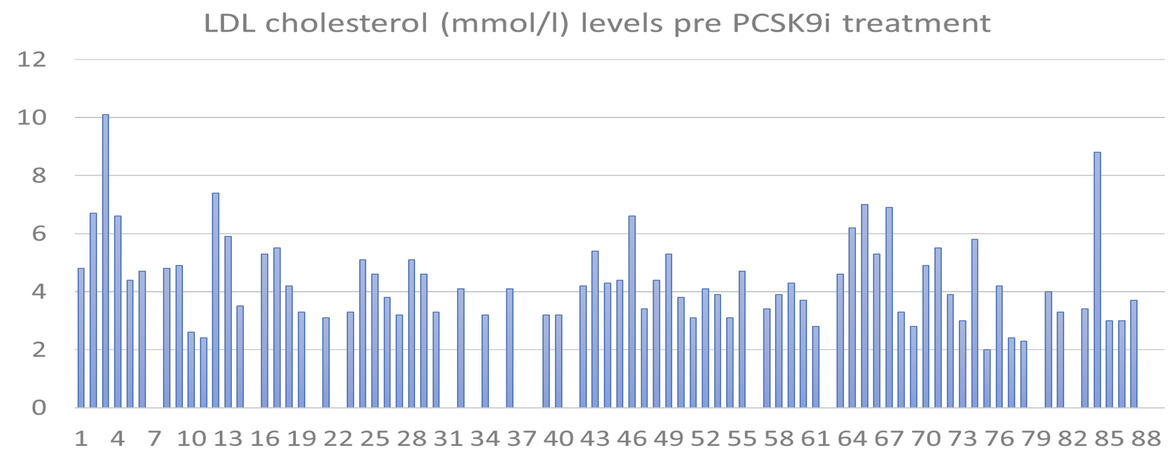
Background: PCSK9 inhibitors have been introduced into our armamentarium of lipid lowering treatments in getting our patients towards optimal treatment targets. We started initiating PCSK9 inhibitors (PCSK9i) in the clinic in March 2017 and recently carried out an audit to determine how many of our patients have been able to achieve ESC/EAS LDL-C treatment targets of < 1.4 mmol/L and < 1.8 mmol/L.

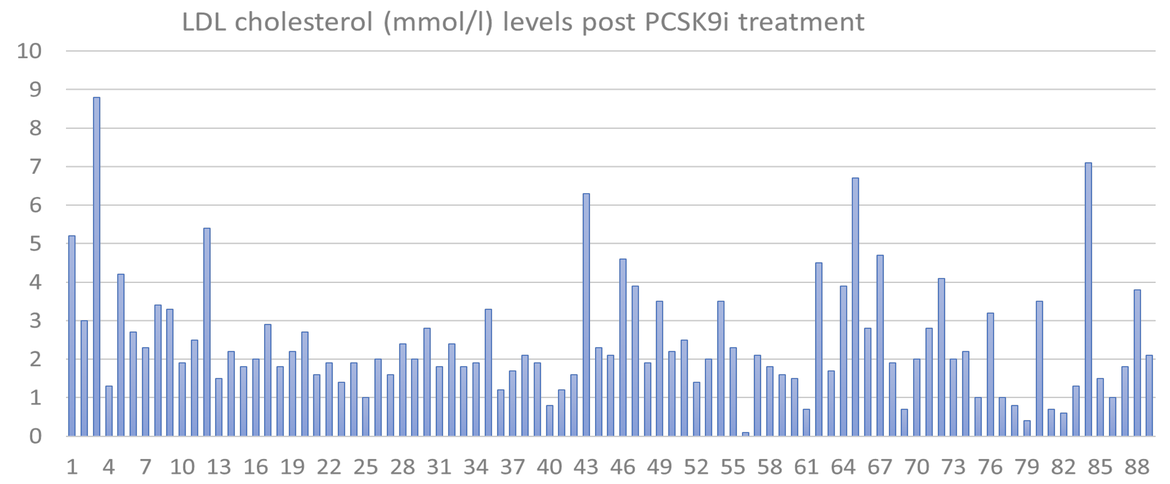
Method: Clinic based audit using retrospective pathology result database to review the lipid profiles of adults prescribed PCSK9 inhibitors (alirocumab and evolocumab) from March 2017 – July 2022. The patients' total cholesterol and LDL cholesterol measured prior to them commencing on their PCSK9i treatment and their most recent total cholesterol and LDL cholesterol post treatment were collected. One hundred and fifty-one patients' results were reviewed. Eighty-five percent (85%) of the patients were referred with statin intolerance, with the remaining 15% of the patients with statin resistance. Of the patients, 41 (47%) were males and 47 (53%) females with ages ranging from 30 – 82 years, with a mean age of 62.4 years. The duration of treatment ranged between 1 – 7 years and 63 (71%) of the patients were on alirocumab (Praluent) and 26 (29%) were on evolocumab (Repatha).

PCSK9 Treatment Duration (Years)	Number of Patients (%)
1	5 (6%)
2	24 (27%)
3	13 (15%)
4	4 (4%)
5	9 (10%)
6	15 (17%)
7	19 (21%)

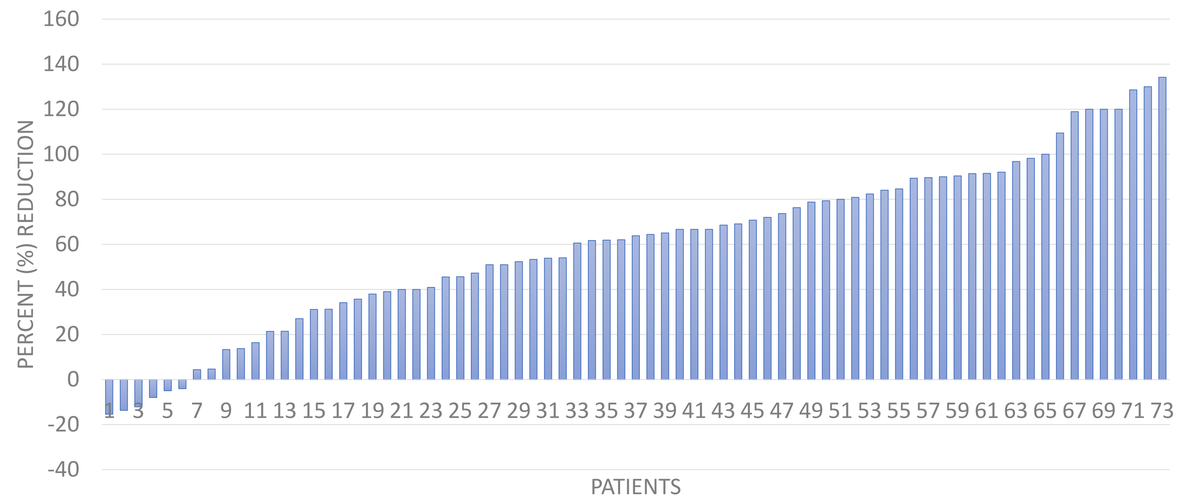


Results: The LDL cholesterol levels in the patients prior to treatment ranged between 2.0 mmol/l – 10.1 mmol/l, with a mean level of 4.3 mmol/l after PCSK9i treatment the LDL cholesterol levels in the patients ranged between 0.1 mmol/l – 8.8 mmol/l, with a mean level of 2.5 mmol/l. Twenty-seven (31%) of the 89 patients had LDL cholesterol levels < 1.8 mmol/l, with 16 (18%) patients with an LDL cholesterol < 1.4 mmol/l.





The effect of the PCSK9is on the LDL cholesterol ranged from an increase of 15% to a reduction of 134%, with an average reduction of 60%. About 11% of patients were classified as hypo responders as they only had < 10% reduction of the LDL-cholesterol on the PCSK9is.



Conclusion: This present audit-based evaluation on treatment attainment in a real-world setting showed that only about a third of the patients with a history of statin intolerance and statin resistance attending a specialist lipid clinic treated with PCSK9 inhibitors achieved the recent LDL-C targets recommended ESC/EAS guidelines. This data is not as high as expected possibly due to the kind of patients seen in this specialist lipid clinic. In addition, there is a sub-group of patients who may have a sub optimal response to PCSK9is and there might be a requirement to identify these patients before initiating them on PCSK9i treatment.

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