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LONGITUDINAL ANALYSIS OF LIPID TRENDS IN SEVERE HYPERCHOLESTEROLAEMIA TREATED WITH EVINACUMAB: AN EIGHTEEN-MONTH OBSERVATIONAL COHORT

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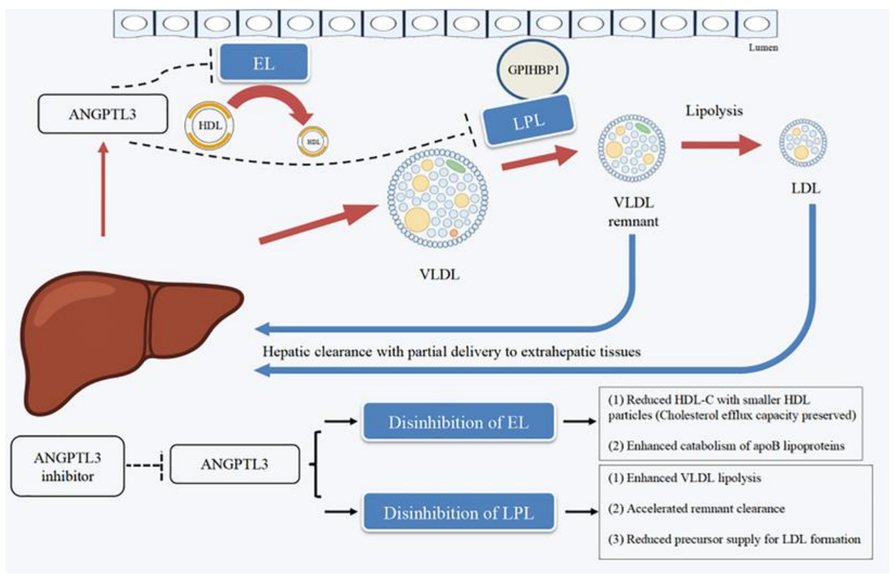
BACKGROUND AND IMPORTANCE

Severe hypercholesterolaemia often persists despite maximally tolerated lipid-lowering therapy. Evinacumab, an anti-angiopoietin-like protein 3 monoclonal antibody, lowers LDL-C via an LDL receptor–independent pathway. Real-world evidence from hospital practice remains limited.

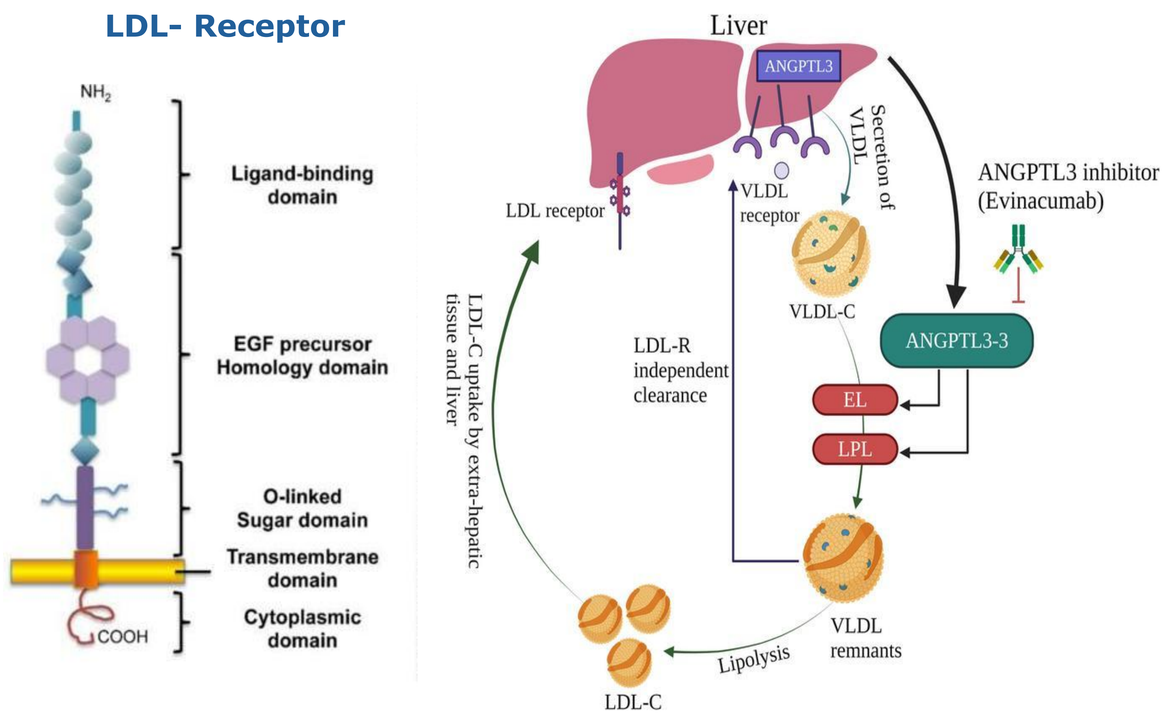


AIM AND OBJECTIVES

To quantify longitudinal changes in lipid parameters with evinacumab in routine care and explore differences between monotherapy and combination therapy (statins/ezetimibe/PCSK9 inhibitors).

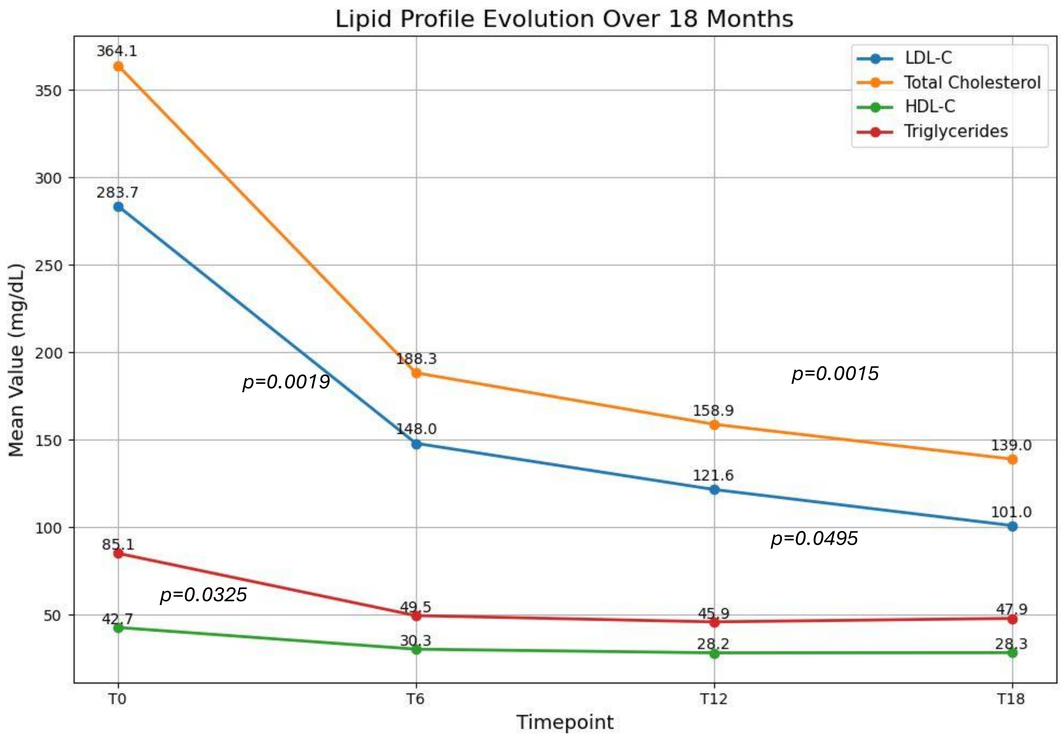
MATERIAL AND METHODS

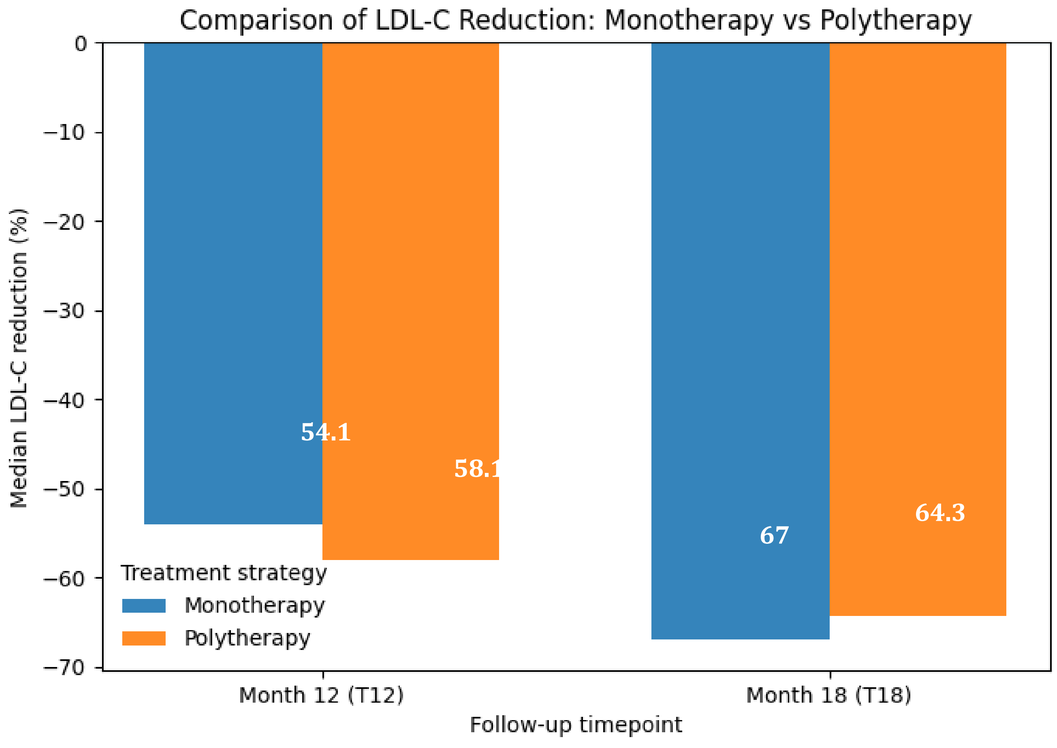
Single-centre, retrospective observational cohort at a tertiary-level hospital, including all patients with homozygous familial hypercholesterolaemia (HoFH) treated with evinacumab 15 mg/kg IV every 4 weeks between February 2024 and September 2025.
Patients were assessed at baseline (T0) and approximately 6, 12 and 18 months (T6, T12, T18). Outcomes were LDL-C (primary), total cholesterol (TC), HDL-cholesterol (HDL-C) and triglycerides (TG).
Statistical analysis used the Friedman test for repeated measures (T0–T18), paired Wilcoxon for T6/T12/T18 vs T0, and Mann-Whitney U tests for LDL-C % change between monotherapy and polytherapy (two-sided α=0.05). Mean (SD) is reported for continuous variables.



RESULTS

Thirteen patients were included. Mean LDL-C fell from 283.7±87.8 mg/dL (T0) to 148.0±78.3 (T6), 121.6±44.5 (T12) and 101.0±36.5 (T18); Friedman χ^2=14.953, p=0.0019.
Median paired change vs T0: T6 −80 mg/dL (−49.5%), p=0.0010; T12 −133 mg/dL (−57.7%), p=0.0020; T18 −180 mg/dL (−64.6%), p=0.0156. TC decreased from 364.1±119.8 to 188.3±78.3, 158.9±45.9 and 139.0±38.0 mg/dL (χ^2=15.469; p=0.0015), with significant paired reductions at all timepoints (all p≤0.001 except T18 p=0.0156).
HDL-C declined from 42.7±12.0 to 30.3±7.0, 28.2±7.3 and 28.3±6.0 mg/dL (χ^2=8.773; p=0.0325); paired changes were significant at T6 (−15 mg/dL, −30.7%, p=0.0068) and T12 (−15 mg/dL, −38.9%, p=0.0049). TG decreased from 85.1±52.4 to 49.5±21.4, 45.9±20.3 and 47.9±24.6 mg/dL (χ^2=7.836; p=0.0495), with significant paired reductions at T12 (p=0.041) and T18 (p=0.031).
Percentage LDL-C reduction did not differ significantly between monotherapy and polytherapy at T12 (median −54.1% [n=2] vs −58.1% [n=9]; p=0.909) or T18 (−67.0% [n=2] vs −64.3% [n=5]; p=0.857).





CONCLUSION AD RELEVANCE

Evinacumab produced large and statistically significant LDL-C and TC reductions up to 18 months. Percentage LDL-C lowering appeared similar in monotherapy and polytherapy, although subgroup sizes were small. These findings support evinacumab as an effective option for severe hypercholesterolaemia and warrant confirmation in larger cohorts with systematic safety capture and predefined lipid targets.

REFERENCES AND/OR ACKNOWLEDGEMENTS

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