

Changes over time in AI-based echocardiographic metrics before and after therapy in ATTR cardiomyopathy

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INTRODUCTION

- ATTR-CM is progressive and fatal; TTR-specific therapies reduce mortality, but up to 30% keep progressing → reliable monitoring needed
- Echocardiography is widely available and cost-effective, but real-world data on changes over time and treatment response are limited

PURPOSE

Can AI-based echocardiography detect attenuation of disease progression after disease-modifying therapy in ATTR-CM?

METHODS

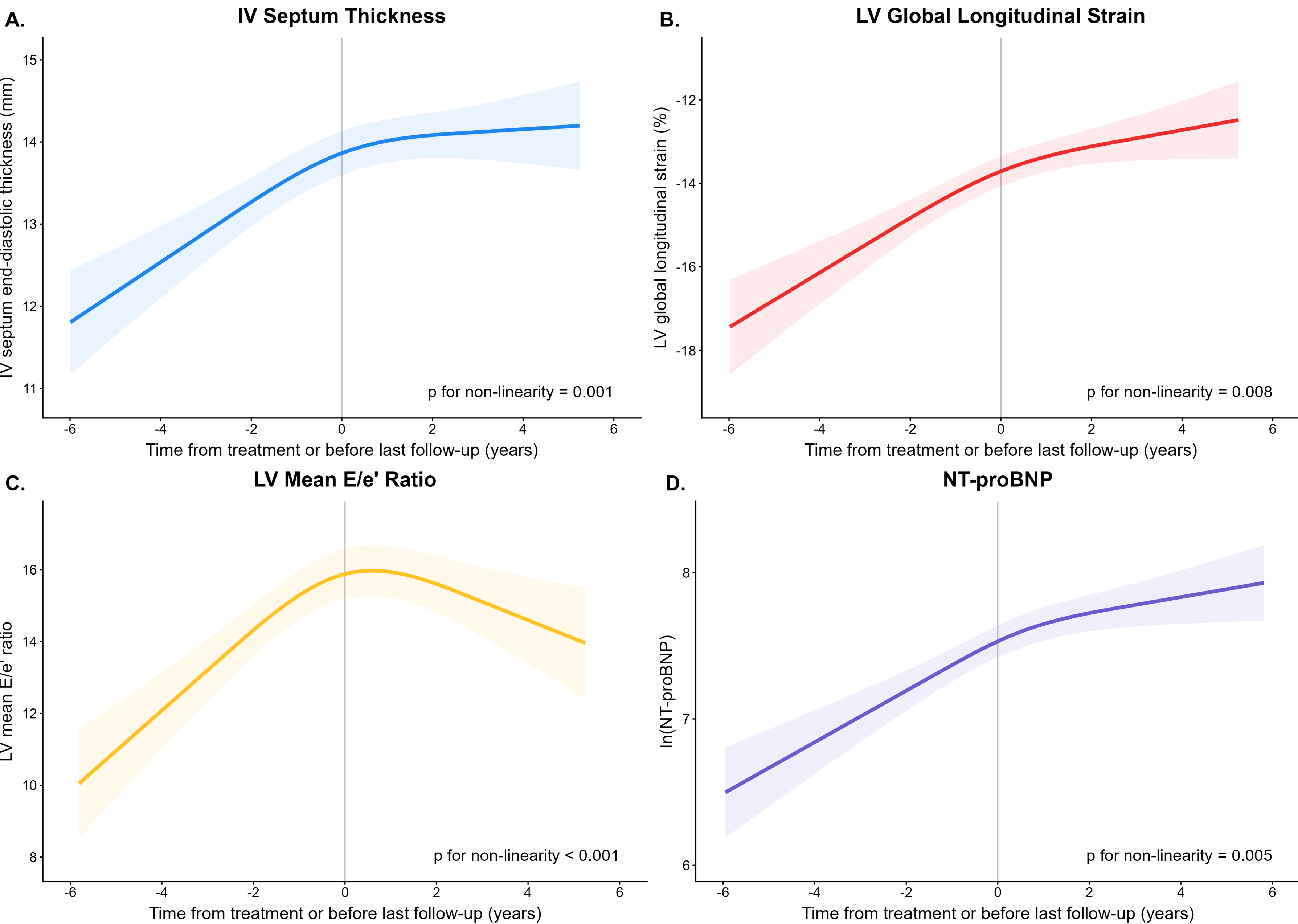
- Retrospective cohort, 2 multisite registries (Zurich, Bern); wild-type ATTR-CM
- All echocardiograms fully AI-quantified (Us2.ai); NT-proBNP from clinical records
- Time scale aligned to therapy initiation (t0); untreated patients modelled as pre-treatment
- Window -6 to +6 years around t0
- Linear mixed-effects models with restricted cubic splines

CONCLUSION

AI-based echocardiography captures early attenuation of disease progression after disease-modifying therapy, supporting it as a sensitive and accessible tool to monitor treatment response in ATTR-CM.

RESULTS

Changes Over Time in AI-Based Echocardiographic Metrics Before and After Treatment in ATTR Cardiomyopathy
Linear Mixed-Effects Models With Restricted Cubic Splines



- 335 patients (93% male, median age 78 y); median 4 echos each; 73% treated
- All metrics worsened before treatment ($p < 0.05$)
- After therapy: significant attenuation of progression – IVST, LV GLS, TAPSE, LA volume, LA reservoir strain, NT-proBNP (all p for non-linearity ≤ 0.008) while E/e' even improved ($p < 0.001$)