Temporal Changes in Cardiac Amyloid Burden Assessed Using ^{124}I-Evuzamitide PET/CT

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Introduction

- ^{124}I-evuzamitide (^{124}I-p5+14, AT-01) is a novel pan-amyloid radiotracer.
- It can specifically quantify cardiac amyloid burden in multiple forms of amyloid cardiomyopathy.
- However, its ability to measure temporal changes in cardiac amyloid burden is unknown.

➤ The aim of this study was to quantify temporal changes in cardiac amyloid burden in participants with light-chain or wild-type transthyretin amyloid cardiomyopathy (AL-CMP or ATTRwt-CMP).

Methods

- We included 9 participants:
  - 2 with AL-CMP in hematological remission
  - 7 with ATTRwt-CMP treated with tafamidis
- Participants were all male.
- Median age was 74 years (IQR 73 – 78).
- At baseline and at 12 months, all participants underwent positron emission tomography/computed tomography (PET/CT) 5 hours after injection of ^{124}I-evuzamitide:
  - Median injected activity 1.08 mCi (IQR 1.00 – 1.15)
- Left ventricular uptake was delineated by iso-contouring the volume of left ventricular activity concentration with a threshold above the mean + 2 standard deviations of the left atrial blood pool activity concentration.
- Cardiac amyloid burden was quantified as left ventricular percent injected dose:
  - $LV\ \%ID = \frac{mean\ activity\ concentration \times activity\ volume}{injected\ activity}$

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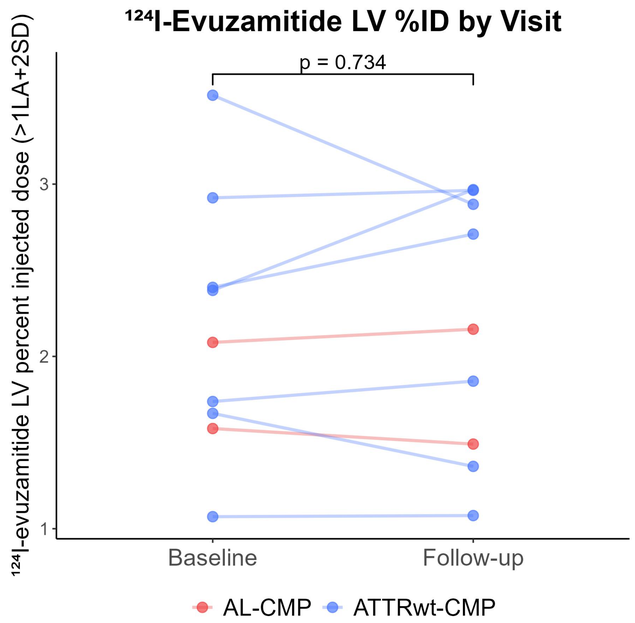
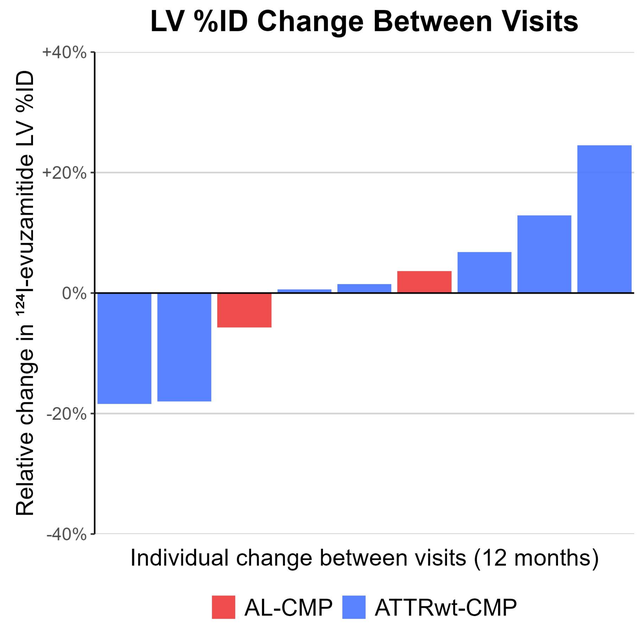
Results

- At baseline, the median LV %ID was 2.08 (IQR 1.67 – 2.40) and at 12 months 2.16 (1.49 – 2.88, p = 0.734).
- The median absolute change in LV %ID over 12 months was +0.04 (-0.09 – +0.12).
- The median relative change in LV %ID was +1% (IQR -6% – +7%), with a range of -18% – +25%.





Conclusions

➤ **^{124}I-evuzamitide PET/CT can capture temporal changes in cardiac amyloid burden.**
➤ **In line with the expected effect of therapy for AL or ATTR amyloidosis, no significant changes in myocardial uptake were observed at 12 months.**
➤ **However, ^{124}I-evuzamitide PET/CT detected a wide range of individual temporal changes, suggesting measurement variability or heterogeneity of response to therapy.**

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