SEX- AND AGE-DIFFERENCES IN NATIVE T1 RELAXATION TIMES IN HEALTHY ADULTS AT 1.5 AND 3.0 TESLA

Background Limited information is available on sex differences in myocardial T1 relaxation times over age ranges. We used cardiac magnetic resonance (CMR) imaging at two field strengths to assess myocardial T1.

Methods Healthy adults underwent CMR at 1.5 Tesla (T) (Avanto) and 3.0 T (Verio). T1 maps were acquired in three short axis slices, using an optimised MOLLI investigational prototype sequence (Siemens Healthcare WIP 448). Global mean T1, in milliseconds (ms), was calculated from evaluable regions-of-interest using 16-segment model.

Results 84 volunteers (43 male) underwent scans 1.4 ± 1.4 days apart. Because of artefacts related to cardio-respiratory motion and susceptibility effects, 47 (3.9%) segments were excluded at 1.5 T and 81 (6.3%) segments at 3.0 T, with a preponderance of females may explain these differences and this possibility merits further assessment.

Conclusions In healthy adults, sex differences in global myocardial mean T1 relaxation times are observed amongst younger. This pattern is consistent across CMR field strengths. Pre- vs. post-menopausal differences in myocardial structure and function of females may explain these differences and this possibility merits further assessment.

Abstract 28 Figure 1 Global myocardial T1 relaxation times.

Regression analysis shows that at 1.5 T average T1 decreases by 5.13 ms for each additional decade (p = 0.038). An identical trend was observed at 3.0 T, with regression coefficient −0.564 ms/year approaching statistical significance (p = 0.064).

Conclusions In healthy adults, sex difference in global myocardial mean T1 relaxation times are observed amongst younger. This pattern is consistent across CMR field strengths. Pre- vs. post-menopausal differences in myocardial structure and function of females may explain these differences and this possibility merits further assessment.