Meeting abstract

2077 Detection and differentiation of myocardial delayed contrast enhancement patterns by cardiac mri in patients with end stage renal disease

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Introduction

Cardiovascular disease is a common complication in patients with end stage renal disease (ESRD) being the leading cause for mortality in this group of patients. From literature we know about the high prevalence of coronary artery disease among patients with ESRD with up to 50% of patients suffering fatal myocardial infarction.

Furthermore it is known from autopsy studies that the majority of patients with ESRD develop interstitial myocardial fibrosis. Myocardial fibrosis can be accurately and non-invasively be detected by contrast-enhanced cardiac MRI.

Purpose

We sought to assess the presence of distribution patterns of delayed contrast enhancement (DCE) in patients with ESRD listed for kidney transplantation (NTX).

Methods

62 patients with ESRD listed for NTX underwent cardiac MRI using a clinical 1.5 T scanner. DCE (gadolinium at 0.2 mmol/kg bw) images were acquired in continuous short-axis slices covering the left ventricle (sequence). MR images were analysed by consensus-reading of two experienced observers using the 17-segment-model regarding the presence and distribution of DCE. According to its pattern DCE was classified either as ischemic-type or non-ischemic-type DCE. Subendocardial and transmural DCE

was classified as ischemic-type DCE. Intramural, spotted, subepicardial or diffuse DCE was classified as non-ischemic-type DCE.

Results

In 4 of the 62 patients DCE image quality was insufficient, so 58 patients could be included into the final analysis. Patient characteristics are listed in table 1.

Any type of DCE of detected in a 57 of 58 patients (98%). Differentiation of the enhancement pattern revealed evidence of prior myocardial infarction in 21 patients (36%). Non-ischemic-type DCE was found in a total 51 of 58 patients (88%), with most affected segments showing a spotted DCE. In 15 of the 21 patients with evidence of myocardial infarction DCE of the non-ischemic-type was seen in additional segments.

Conclusion

Myocardial infarction detected by the presence of ischemic-type DCE is a common finding among patients with ESRD listed for NTX. Additionally, our results confirm the high prevalence of interstitial myocardial fibrosis in this group of patients. As cardiovascular disease strongly influences the prognosis of patients with ESRD, the early non-invasive detection of cardiac involvement by MRI could help to guide further diagnosis and treatment.

Table 1: Patients characteristics

Age (years)	59 +/- 14
Male, n(%)	36 (62)
Known CAD, n (%)	23 (40)
Diabetes mellitu, n (%)	24 (41)
ESRD due to diabetic nephropathy, n (%)	19 (33)
Hypertension, n (%)	52 (90)
Hyperlipidemia, n (%)	24 (41)