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Benefits for patients with CHD in 3.0 Tesla MR Imaging with MultiTransmit Technology – First Experience

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Introduction: Drawbacks of conventional 3.0T MRI are related to pronounced dielectric shading and SAR limitations and restricts its use in clinical routine work. Almost no information is accessible concerning cardiac examinations. Aim of the investigation was to estimate the impact of MultiTransmit technology (TX) to improve examination strategies in pts with complex CHD and optimization of scanning parameters.

Results: As shown in the figure (upper row) enhanced image uniformity was achieved applying two independent RF sources resulting in consistent SAR distribution (right). The reduced SAR allows either the acquisition of more slices per time unit or a reduction of scanning time by about 30-40 % in TSE black blood sequences. In SSFP sequences TX decreases the repetition time (actual case: 3.3s to 2.9s) and echo time (1.65s to 1.45s). In addition to an improved image quality (lower right) breathhold acquisition time was reduced.

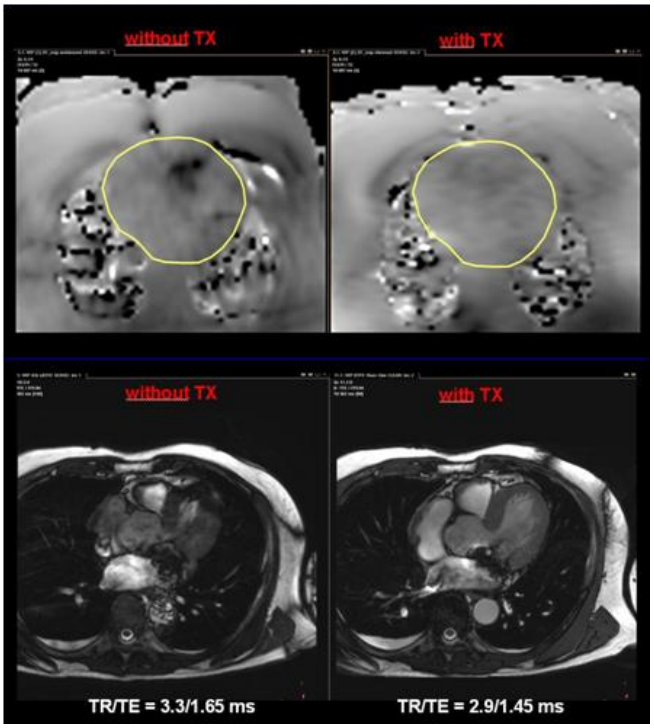

Fig: B1 calibration and example of prosthetic mitral valve using SSFP with and without Tx.

Conclusion: MultiTransmit technology speeds up examination of cardiac patients and improves image quality.