**Supplementary Material**

**The image acquisition methods**

All images were acquired using a1.5-T scanner (EXCELART Vantage Powered by Atlas, Toshiba Medical Systems, Tochigi, Japan) equipped with the Atlas SPEEDER body coil. Kidney image acquisition included coronal T2-weighted single-shot fast spin echo / half-Fourier acquired single turbo spin echo (2D fast advanced spin-echo, FASE) images with fat saturation. The image parameters for 2D FASE were as follows: repetition time/echo time, 20,000/104 ms; number of acquisitions, 1; number of slices, 32; flip angle, 90°; field of view, 400 x 400 mm; matrix, 192x256 reconstructed; slice thickness, 4 mm; acquisition times, 18 s; parallel imaging factor, 2.

**MRI volume measurement and image parameters for 3DFFE**

A Ziostation System 1000 (Ziosoft Inc., Tokyo, Japan) was used for volume measurements. Two to three signal intensity profile curves were obtained across the kidney and surrounding tissue. The threshold was determined at the halfway of intensity curves on a case-by-case basis. After setting the value, the kidney to be segmented was displayed on the image. Each slice image was checked and corrected manually. The KV was calculated from each set of serial images by summing the products of the area measurements and the slice thickness [14].

The image parameters for 3DFFE were as follows: repetition time/echo time, 4.8/1.9 ms; number of acquisitions, 1; number of slices, 32; flip angle, 90°; field of view, 400 x 400 mm; matrix, 192x256 reconstructed; slice thickness, 4 mm; acquisition times, 21s; parallel imaging factor, 1.8. The kidney volume was determined by summing the cross-sectional areas of T2-weighted images and automatically multiplying by the slice interval. Two experienced MR technologists (KK and IM) participated in the measurements.