SUPPLEMENTAL MATERIAL

Methods

Diffusion tensor imaging and tractography

46 directional diffusion-weighted images were obtained using the single-shot EPI sequences (number of slices = 60, slice thickness = 2.25 mm, matrix size = 112 × 112, in-plane resolution = 1.96 mm × 1.96 mm). The 46 images consisted of 1 image volume acquired without diffusion gradients and 45 image volumes acquired with diffusion gradients along respective directions. In addition, a high-resolution T1-weighted structural image was acquired using a 3D gradient echo sequence (TR = 13.914 ms, TE = 6.89 ms, number of slices = 124 slices, slice thickness = 1.6 mm, matrix size = 512 × 512, in-plane resolution = 0.47 mm × 0.47 mm). We evaluated fiber connectivity using the FACT (fiber assignment by continuous tracking) technique with 3D-fiber reconstruction algorithm PRIDE® software ((Philips Medical Systems, Best, Netherlands). The termination criteria used for fiber tracking were FA < 0.2 and an angle change > 45°. To reconstruct the corticospinal tract (CST) we used the 2 region-of-interest (ROI) method. The analysis was started with an ROI in the motor cortex. A second ROI was drawn in the lower anterior pons. A logical AND-function was added so that only fibers passing through both the motor cortex and basis pontis were considered for further analysis. Fibers that went to the cerebellum were excluded by drawing ROIs in the superior cerebellar peduncle and the middle cerebellar peduncle and applying a logical NOT-function in conjunction with the other ROIs.¹ ²
References
