Hybrid Frame-based Neuronavigation

Sun et al. have invented a new stereotactic instrument (1), which is thought to bridge the differences between frameless and frame-based techniques. It consists of a stereotactic frame, which is attached to the skull in a manner comparable to classical stereotactic frames. Instead for guidance of a linear instrument, as for example in the case of a frame-based stereotactic biopsy, it is connected with a visualization system for guidance of multiple instruments, which can be moved in every possible direction. The accuracy is said to be approximately 2 mm, which is again somewhere between the accuracies of frame-based (less than 1 mm) and frameless systems (between 1 and 5 mm).

Since the invention of frameless stereotaxy in the late 1980s and early 1990s (2,3) (first description of a frameless stereotactic system by Roberts et al. (2) and of the first frameless and armless system by Kato et al. (3)) this technology has become an intrinsic part of neurosurgical procedures. Still the accuracy is far lower than that in frame-based procedures due to technical reasons. Therefore the author’s efforts to develop a new stereotactic system, which makes use of the best aspects of both principles, are very welcome. Also the system’s compactness and low costs make it useful for the future. I am looking forward to reports of a larger series of patients operated using this system, especially taking the accuracy into account.

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REFERENCES