

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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