《Invited Educational Lectures》

EL1. Interventional Brain SPECT

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Brain imaging with HMPAO or ECD has gained wide spread clinical application in epilepsy, psychiatric and cerebrovascular diseases as resolution could be improved by using dedicated SPECT systems (triple head gamma camera, annular crystal). However, sensitivity may be considerably improved by the application of interventional techniques. **Pharmacological** intervention includes the injection of diamox or barbiturates (WADA-test) as well as the reduction of medication especially in epilepsy. **Mechanical** intervention requires the occlusion (balloon) or compression of the carotid artery (MATAS-test). For the evaluation of brain function, **mental** intervention may be useful. These stimuli include acoustical, visual and motoric challenge. Above that, the speech areas may be identified through language stimulation (syntax, semantics). The prefrontal functions may be evaluated using the Wisconsin Cart Sorting Test, especially in depression and schizophrenia. During sleep, circumscribed lesions may be detected in sleep apnoea and narcolepsy. The **CO_2** intervention allows the evaluation of the cerebrovascular (perfusion) reserve by breathing CO_2 or by hyperventilation. The **ictual** intervention is the most common procedure for the proof of epileptic foci. The ictual/interictual switch allows the localization of a focus in about 90% which is extremely useful in patients considered candidates for temporal lobectomy.

The methods of the here mentioned 5 interventional procedures as well as the results will be presented in this review.