

### 2.1

#### Prognostic factors after TBI

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1. The basic model included four predictors: age, Glasgow coma scale, pupil reactivity, and the presence of major extracranial injury. In a CT model additional indicators were: the presence of petechial haemorrhages, obliteration of the third ventricle or basal cisterns, subarachnoid bleeding, mid-line shift, and non-evacuated haematoma (Perel).

2. The longer the period of post-traumatic amnesia the worse the outcome.

The latter is defined as the period of time from injury until resumption of day-to-day memory. There is a crude correlation between the amount of brain damage (as determined by MRI) and long-term outlook. However, there are many exceptions to these general rules and it is always unwise to give any definite prognosis within the first few weeks of injury. Most physical recovery will occur in the first 12 month, but some physical improvement can certainly occur during the second year after injury. Neuropsychological recovery takes much longer and between 2 and 3 years is usually taken as reasonable length of time for natural recovery to continue (Barnes).

3. Five factors that reduce life expectancy after TBI: Immobility, Incontinence,

Inability to swallow, On-going and uncontrolled epilepsy, Severe cognitive and intellectual damage (Barnes).

4. Corrigan 2008: 100 participants 2 years postinjury, 100 participants 5 years post injury. For both outcomes, a small but important proportion of the variance accounted for by neighborhood indices was unique to these environmental influences and was not accounted for by individual indices, including concurrent measures of functioning and the individual's perception of environmental influences.

### 3.2

#### Functional involvement of cerebral cortex in patients with sleep-wake disturbances after traumatic brain injury: a TMS study.

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*Objective:* Sleep-wake disturbances (SWD) are common after traumatic brain injury (TBI); in particular, chronic excessive daytime sleepiness (EDS) is a major, disabling symptom for many patients with TBI. However, the pathophysiological mechanisms remain unclear. Transcranial magnetic stimulation (TMS) represents a useful complementary approach in the study of sleep pathophysiology. We aimed to determine in this study whether post-traumatic SWD are associated with changes in excitability of the cerebral cortex.

*Methods:* TMS was performed 3 months after mild to moderate TBI, in 11 patients with subjective excessive daytime sleepiness (defined by the Epworth Sleepiness Scale 10), 12 patients with objective EDS (as defined by mean sleep latency < 5 on multiple sleep latency test), 11 patients with fatigue (defined by daytime tiredness without signs of subjective or objective EDS), 10 patients with post-traumatic hypersomnia "sensu strictu" (increased sleep need of >2 h per 24 h compared to pre-TBI), and 14 control subjects. Measuring of cortical excitability included central motor conduction time, resting motor threshold (RMT), short latency intracortical inhibition (SICI) and intracortical facilitation to paired-TMS.

*Results:* In the patients with objective EDS and hypersomnia, RMT was higher and SICI was more pronounced than in control subjects. In the other patients all TMS parameters did not differ significantly from the controls.

*Conclusions:* Similar to that reported in patients with narcolepsy, the cortical hypoexcitability may reflect the deficiency of the excitatory hypocretin/orexin-neurotransmitter system.

A better understanding of the pathophysiology of post-traumatic SWD may also lead to better therapeutic strategies in these patients.

### 2.3

#### Recovery-Suited Rehabilitation Programs for Brain-Injured

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Different programs have been described for the rehabilitation of traumatic brain injured patients (TBI). Their efficiency on regard to the importance of the rehabilitation activities is discussed.

We take the option to define specific Programs of care and rehabilitation suited to the various stages of TBI persons: Arousal Program for patients in the early stage of return of consciousness and Post-Traumatic Amnesia (PTA); Physical and cognitive rehabilitation Program for patients at the end of PTA, more or less dependent and who need physical and cognitive rehabilitation; Neuropsychological rehabilitation and reintegration Program: dedicated to independent patients who essentially keep cognitive problems; neurological continuation Program: for conscious but dependent patients, waiting to the return to home or to transfer in an adapted accommodation and who need maintenance rehabilitation and personal activities; PVS/ MCS Program for patients in a chronic altered state of consciousness.

Patients may, according to their recovery, cross one or several programs. An assessment TBI Program is devoted to out-patients who need a brief evaluation, essentially concerning cognitive impairment.

Each program defines objectives, criteria of inclusion, exclusion and release, specific care and rehabilitation activities and specific human and technical means. The architectural dimension, of hospital or rather hotel type, is also adapted to the need of care and rehabilitation and to the autonomy of the patient.



BIF European Confederation

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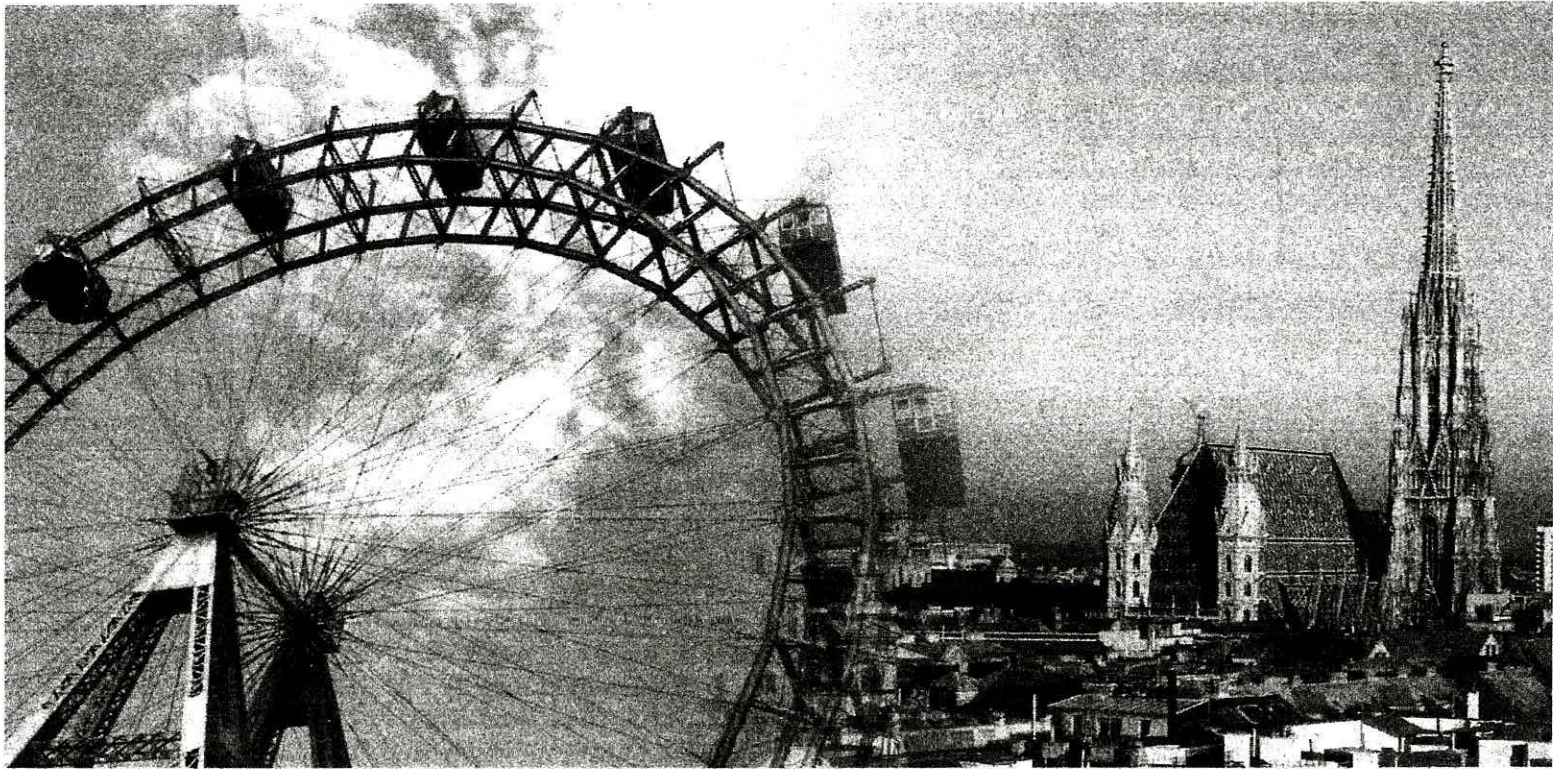


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**ABSTRACT BOOK**

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