Therapy of Peritumoural Brain Oedema

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In more extensive earlier publications [1, 2, 3], we have attempted to quantify the effect of anti-oedema therapy in adult brain tumour patients. We should like to summarize some clinical aspects and consequences for oedema therapy.

There are various areas of anti-oedema therapy in brain tumour patients:
1) Preoperative treatment and preparation
2) Postoperative and also intraoperative therapy (see J. Otte et al., pp. 222–228)
3) Long-term therapy in inoperable patients.

The dosage and duration of therapy vary very substantially in view of the different objectives. The individual situation also always requires individual therapy.

A central concern is always the restoration of a disturbed brain function. The consciousness situation can already be appreciably improved within hours under dexamethasone, whereas other symptoms (e.g. hemiparesis symptoms) frequently regress very much more slowly and also incompletely.

Fig. 1. Reduction of midline shift during combination therapy with dexamethasone and furosemide
It is no less important to reduce the increasing volume due to brain oedema, to reduce the size of the oedema area and thus to diminish the midline displacement. Reopening of the ventricular system and the cisternae must be made possible, the intracranial pressure must be lowered and finally (as a consequence) the cerebral blood flow must be improved.

The reduction of oedema is especially important for preoperative preparation. However, in contrast to the frequently very rapid regression of the neurological symptoms, reduction of peritumoural oedema always takes place only with a very substantial delay and is practically always incomplete. The oedema area, which we have measured planimetrically, often only regresses within weeks despite combination therapy with furosemide. Accordingly, the midline displacement also shows a delayed reduction (Fig. 1).

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![Fig. 2. Correlation of the result of anti-oedema therapy with the nature of respective brain tumours. • Untreated, ○ pretreated with dexamethasone, Δ pretreated with dexamethasone and furosemide](image-url)