SUMMARY
The stated purpose of the meeting was to summarize “current, new and proven approaches in diagnostics and epilepsy therapy”, to define optimal clinical practice and scientific research areas, highlight advances in clinical and basic science and to identify future approaches or directions in epilepsy treatment.

Key words: epilepsy treatment • MEG and EEG • definition of epilepsy

DIAGNOSTIC ASPECTS
A first focus emphasised on symptomatic epilepsies with “benign lesions” such as cavernomas or long-term epilepsy associated tumors (LEAT). These lesions are often associated with drug resistant focal epilepsies lasting for many years.

As to LEATs an early diagnosis with regard to a successful epilepsy surgery is important. Here it mostly concerns ganglioglioma or dysembrioplastic neuroepithelial tumors (DNET).

In addition to clinical symptoms and therapy, pathogenetic aspects were extensively discussed. With regards to cavernomas, besides epileptic seizures initially controlled by anticonvulsant drugs, consideration needs to be taken with regards to bleeding of the cavernome.

Regarding epilepsy surgery, multimodal intraoperative imaging including intraoperative MRI (magnetic resonance imaging) have been introduced, a method which allows a complete resection of the lesion.

In addition to an improved diagnosis with MRI, a temporal and spatial high-resolution source localization method with magnetoencephalographic (MEG) has been developed.

MEG and EEG are complementary investigation tools. The source localization allows an understanding of the special relationship between the epileptic activity and the lesion; for instance focal cortical dysplasia. Of special interest was the correlation of neurobiological findings with MEG e.g. the findings of Alshafai et al. (2014) that patients with astrocytic inclusions are less likely to have tightly clustered MEG spike sources (3/6 (50%) vs 23/27).

Connectivity and network analysis describe the preferred functional representation of epileptic functional changes which lead to a neurophysiological concept of classification of epilepsies.

Imaging occupies an important place in epilepsy diagnostics by using structural as well as functional imaging with MRI, position emission tomography or single photon emission computed tomography. Imaging can be used prenatally, neonatally, in childhood, adulthood and senior age as a noninvasive diagnostic tool.

Besides lesions, functions of the cortex such as motor, sensor and speech system can be displayed (tab. 1).

Therapeutic aspects
An important key topic was related to the attempt to reveal the secret of therapeutic success.
Here predictors have been analysed and new genetic findings have been integrated. Influences on development in infancy and the problem of an optimal transition management from childhood to adulthood was a major focus of epilepsy treatment.

The choice of which anticonvulsant therapy should be prescribed after a first seizure has been facilitated by a classification of risk groups based on different meta-analyses (Muscioco et al., 1997; Kim et al., 2006).

The long-term success of a combination therapy depends on special strategies of selecting medication, on compliance, on prevention of interactions and, on an optimized dose adaption of the basic anticonvulsants. The combination of valproate and lamotrigine has turned out to be an effective polytherapy therapy.

Concerning efficacy and reduction of side effects, the combination of levetiracetam and lacosamide showed favourable results. Mostly two antiepileptic drugs are equally effective than three, but have less side effects. Antiepileptic drugs with different mechanisms of action provide an approach for a good combination therapy. The metabolic long-term effect of lamotrigine and levetiracetam is much lower than that of carbamazepine and phenytoin.

The terminology of ictal symptoms has extensively been illustrated by video EEG monitoring.

Following the ELSAI satellite symposium in which difficult therapy decisions and new antiepileptic drugs were debated, an interactive discussion on interesting and unsolved epilepsy cases of children and adults took place.

Besides initialization of antiepileptic drug and combination therapy the particular characteristics of epilepsies in the elderly with their relative high efficacy at low doses and their pharmacological particularities was also discussed.

Finally, the special problems regarding the proof of additional therapeutic benefit of the new antiepileptic drugs, were discussed (tab. 2).

Thereafter a Round Table Discussion took place whereby expert opinions were aired with regards to various questions relating to epileptology.

Epilepsy is considered to be a disease of the brain defined by any of the following conditions:

1) at least two unprovoked (or reflex) seizures occurring > 24 h apart;
2) one unprovoked (or reflex) seizure and a probability of further seizures similar to the general recurrence risk (at least 60%) after two unprovoked seizures, occurring over the next 10 years;
3) diagnosis of an epilepsy syndrome.

Epilepsy is considered to be resolved for individuals who either had an age-dependent epilepsy syndrome but are now past the applicable age or who have remained seizure-free for the last 10 years and are off antiseizure medicine for at least the last 5 years (Fisher et al., 2014).

Because of the introduction of a new definition of ep-
Table II. AEDs licensed in Germany for focal and generalized epilepsies in mono- or combination therapy

<table>
<thead>
<tr>
<th>Focal epilepsy</th>
<th>Generalized epilepsy</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>simple</td>
</tr>
<tr>
<td>Carbamazepine (CBZ), mono</td>
<td>(&gt;4)</td>
</tr>
<tr>
<td>Oxcarbazepine (OXC), mono</td>
<td>&gt; 6</td>
</tr>
<tr>
<td>Valproinacid (VPA), mono</td>
<td></td>
</tr>
<tr>
<td>Lamotrigine (LTG), mono</td>
<td>&gt;12 add on &gt;2</td>
</tr>
<tr>
<td>Topiramat (TPM), mono</td>
<td>&gt; 2</td>
</tr>
<tr>
<td>Gabapentin (GBP), mono</td>
<td>&gt;12 add on &gt;3</td>
</tr>
<tr>
<td>Tiagabin (TGB)</td>
<td>&gt;12</td>
</tr>
<tr>
<td>Levetiracetam (LEV), mono</td>
<td>add on &gt;12</td>
</tr>
<tr>
<td>Pregabalin (PGB)</td>
<td>&gt;18</td>
</tr>
<tr>
<td>Zonisamid (ZNS)</td>
<td>&gt;18 add on 6</td>
</tr>
<tr>
<td>Rufinamid (RUN)</td>
<td>add on &gt;4</td>
</tr>
<tr>
<td>Lacosamid (LCM)</td>
<td>add on &gt;18</td>
</tr>
<tr>
<td>Eslicarbazepine (ESL)</td>
<td>add on &gt;18</td>
</tr>
<tr>
<td>Retigabine (RGB)</td>
<td>add on &gt;18</td>
</tr>
<tr>
<td>Perampanel*</td>
<td>add on &gt;12</td>
</tr>
</tbody>
</table>

* Perampanel currently is not commercially available in Germany

Abbreviations: TC – tonic clonic; GLS – Lennox-Gastaut Syndrome; – effective; – less effective

Psychological factors

Psychosocial factors such as neurobiology, stress and environmental influences on seizure manifestation are frequently occurring negative impacts. Besides the capacity to drive, which has to be assessed in accordance with new guidelines, the capability of traveling and flight capability has become increasingly important. Therefore these aforementioned areas, as well as the trigger of epileptic seizures, were referred to in great detail.

The faculty of the meeting consisted of clinical academics and basic scientists and resident physicians, senior physicians, clinic directors, psychologists, neuropaediatricians and established neurologists. All participants came from neurological, special epileptological and neuropediatric institutions of the three countries. Members of pharma industries were invited to attend.

The next meeting is planned to occur October 15th to 17th, 2015. The meeting will be dedicated to an international electrophysiological source localization course with hands on exercises in the field of localization of epileptic activity and evoked potential as well as magnetic fields.

DISCLOSURE

I confirm that I have read the Journal’s position on issues involved in the ethical publication and affirm that this report is consistent with those guidelines. The author declares no conflict of interest.

REFERENCES


