Posttraumatic seizures treatment

General information

Some early retrospective studies suggested that early administration of phenytoin (PHT) prevents early PTS, and reduces the risk of late Posttraumatic seizures (PTS) even after discontinuation of the drug. Later prospective studies disputed this but were criticized for not maintaining satisfactory levels and for lacking statistical power [1) 2)]. A prospective double-blind study of patients at high risk of PTS (excluding penetrating trauma) showed a 73 % reduction of risk of early PTS by administering 20 mg/kg loading dose of PHT within 24 hrs of injury and maintaining high therapeutic levels; but after 1 week there was no benefit in continuing the drug (based on intention to treat) [3)]. Carbamazepine (Tegretol®) has also been shown to be effective in reducing the risk of early PTS.

Phenytoin has adverse cognitive effects when given long-term as prophylaxis against PTS [4)].

Treatment guidelines

Based on the available information it appears that:

1. no treatment studied effectively impedes epileptogenesis (i.e. neuronal changes that ultimately lead to late PTS)

2. in high-risk patients, AEDS reduces the incidence of early PTS

3. however, no study has shown that reducing early PTS improves the outcome [5)]

4. once epilepsy has developed, continued AEDs reduces the recurrence of further seizures The following are therefore offered as guidelines.

Initiation of AEDs

AEDs may be considered for short term use especially if a seizure could be detrimental. Early posttraumatic seizures were effectively reduced when phenytoin was used for 2 weeks following head injury with no significant increased risk of adverse effects [6)]. Acutely, seizures may elevate ICP, and may adversely affect blood pressure and oxygen delivery, and may worsen other injuries (e.g. spinal cord injury in the setting of an unstable cervical spine). There may also be negative psychological effects on the family, loss of driving privileges, and possibly deleterious effects of excess neurotransmitters [7)]. Option: begin AEDs (usually levetiracetam, phenytoin or carbamazepine) within 24 hrs of injury in the presence of any of the high-risk criteria. When using PHT, load with 20 mg/kg and maintain high therapeutic levels. Switch to phenobarbital if PHT not tolerated.

Neuromodulation with implantable devices has emerged as a promising therapeutic strategy for some patients with refractory PTE [8)].

References

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