Three to four years after severe traumatic brain injury, at least 22% of children and adolescents have persistent pituitary dysfunction

Yamina Dassa 1, Claire Personnier 1,2, Hélène Crosnier 1,2, Mathilde Chevignard 1,2, Marie Bourgeois 1,3, Magali Viaud 1,4, Michel Polak 1,4

1 Department of Paediatric Endocrinology, Gynecology and Diabetology, Hôpital Universitaire Necker Enfants Malades, APHP
2 Université Paris Descartes, Paris, France
3 Department of rehabilitation, Saint Maurice Hospitals, Saint Maurice, France
4 Department of Neurosurgery, Hôpital Necker Enfants Malades, Paris
5 Department of Paediatric, Poissy Saint Germain-en Laye, Poissy, France
6 Institute Imagine, Paris, France

Background

- Traumatic brain injury (TBI) is common in childhood. However, little is known about mid-term and long-term endocrine consequences
- We have previously demonstrated that pituitary dysfunction is not a rare condition one year after severe TBI[2]

Aim of the study

- We present here the follow-up of the patients who presented growth hormone dysfunction one year after severe TBI (Glasgow Coma Scale ≤8)
- Our aim is to determine if this dysfunction may be persistent.

Methods

- Prospective study
- Initially, the study included 87 patients.
- One year after TBI, 27 of them had growth hormone dysfunction, defined by 2 GH peaks <5 ng/ml
- 5/27 met growth hormone deficiency (GHD) criteria (2 GH peak < 5ng/ml and IGF-1<2DS).
- Between three and four years after TBI, we performed clinical and biological evaluation, including basal and dynamic somatotropic axis tests for each patient

Population description

- 20 boys, 7 girls
- 22 accidental TBI, 5 inflicted TBI
- Mean age at TBI: 5,9 years [0,2-13,5 y]
- Mean age at evaluation: 8,1 years [3,6-11,3 y]
- Mean time after TBI: 3,5 years

Results

- Of the 27 patients with GH dysfunction:
  - 18 patients were explored (2 were already treated with growth hormone)
  - 3 were lost to follow-up
  - 2 declined further explorations
  - 4 missed their appointment for exploration

Conclusions

- Pituitary function recovery can be observed after severe TBI
- Mid-term and long-term follow-up is extremely important to detect GHD and other pituitary dysfunctions


This work is partially supported by Pfizer