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

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Background

- Traumatic brain injury (TBI) is common in childhood. However, little is known about mid-term and long-term endocrine consequences
- We have previously demontrated that pituitary dysfunction is not a rare condition one year after severe TBI[(1)]

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

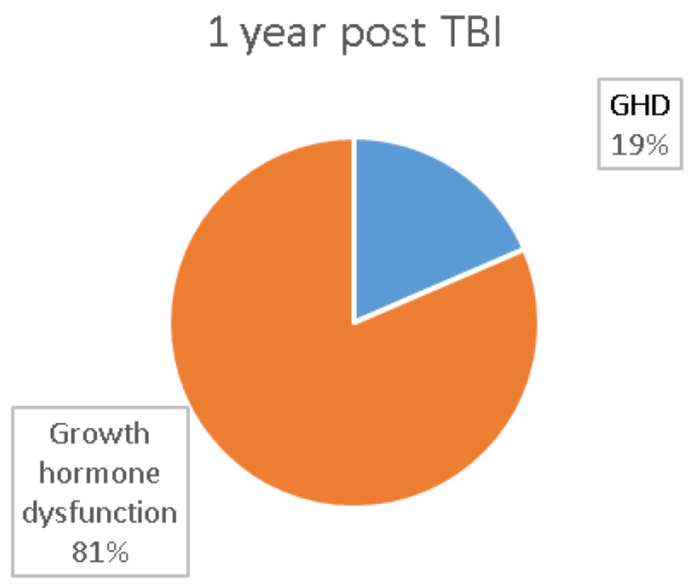
- Prospective study
- Initially, the study included 87 patients.
- One year after TBI, 27 of them had growth hormone dysfunction, defined by 2 GH peaks <5 ng/ml
- 5/27 met growth hormone deficiency (GHD) criteria (2 GH peak < 5ng/ml and IGF-1<-2DS).
- Between three and four years after TBI, we performed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

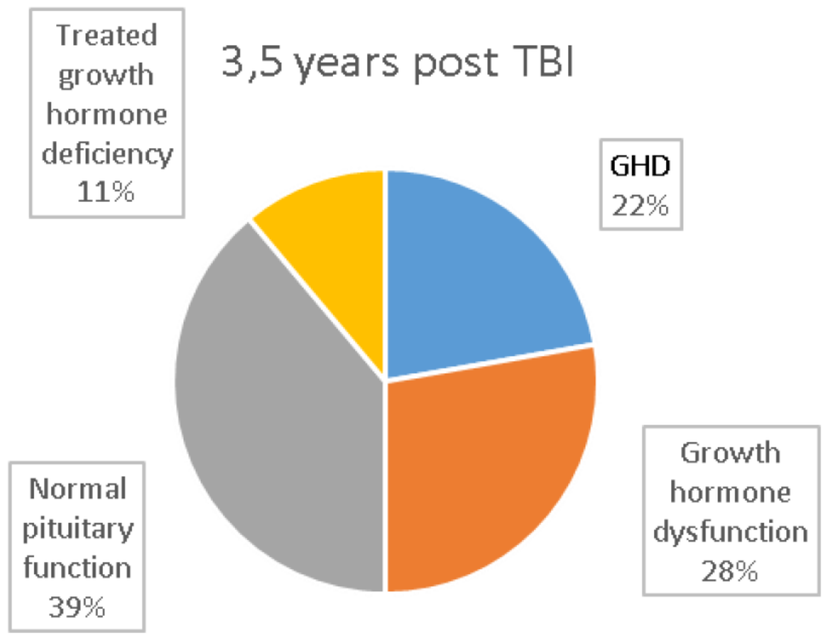
Population description

- 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





- Among the 9 patients who had low GH peaks and who were still untreated:
  - 3 had low IGF1 with conserved growth velocity and did not receive GH treatment
  - 2 new patients required GH treatment
- 7 recovered normal GH secretion, of whom 2 were previously considered GHD
- Among the 18 patients, 1 developed precocious puberty , 1 developed thyrotropic deficiency

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

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1-Personnier C, Crosnier H, Meyer P et al. *J Clin Endocrinol Metab.* 2014