

Quality of life, neurocognitive status and frequency of hypopituitarism following brain injury

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Background/Aim

- Post traumatic Hypopituitarism (PTHP) is common, its prevalence is about 30%.The predictive factors reported in the literature are :the severity of BI, Head imaging,Ischemic factors ,age ,BMI, skull base fracture .Alteration of quality of life and neurocognitive defects after TBI has been attributed by some authors to anterior pituitary deficiency but not by others.
- The aim of the study is firstly to assess the frequency of hypopituitarism 3 and 12 months following Brain injury (BI) in a simple of 133 victims of moderate to severe BI in two neighbors’ hospitals in the east of Algiers .Secondly is to evaluate the quality of life and neurocognitive status of this cohort

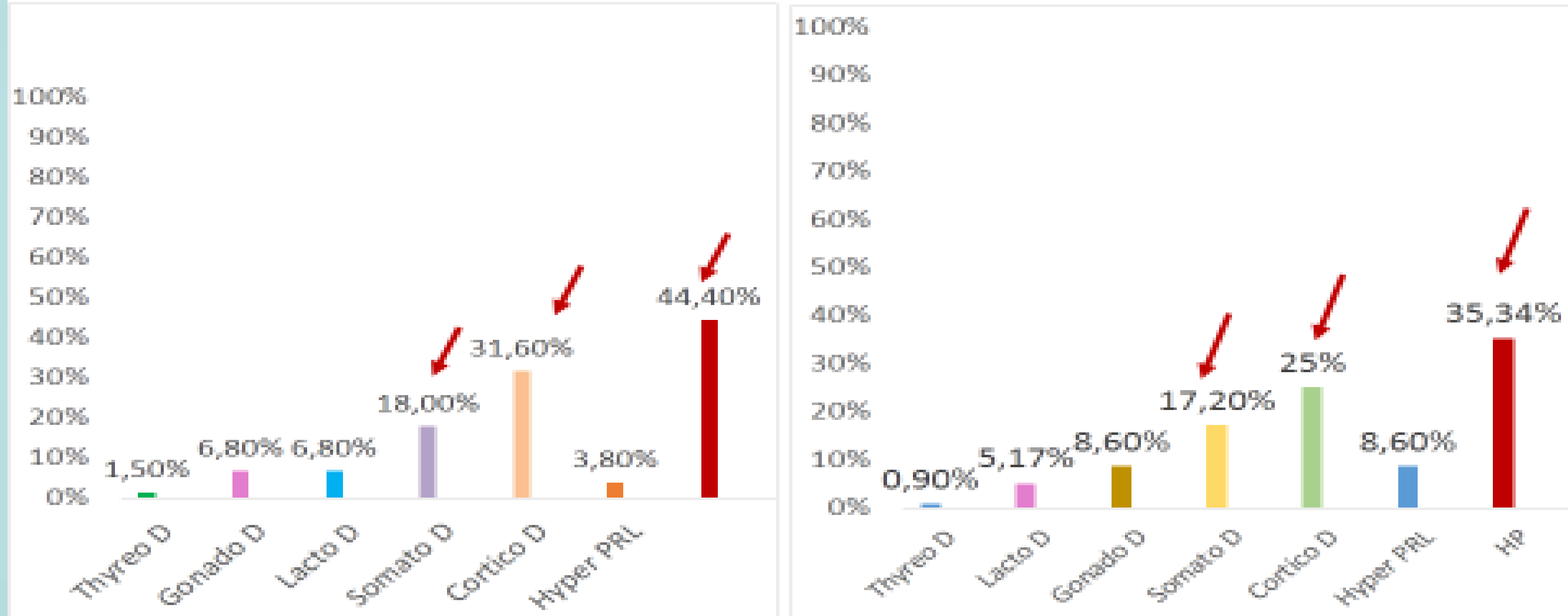
Method

- Hypopituitarism, evaluation of quality of life and neurocognitive status were searched in 133 victims of moderate to severe BI aged 18-65 years(M:32 y) Sex-ratio:15/1
- Clinical signs of hypopituitarism has been researched in 133 patients at 3 months and 116 patients at 12 months after BI.
- Cortisol,ACTH,FSH,LH,PRL,E2(womens),testosterone (mals),IGF1,FT4, TSH ,GH after Insulin tolerance test using RIA and IRMA cis-biointernational kits has been dosed .
- Quality of life has been evaluated by two scales the AGHDA scale (Quality of life Growth hormone deficiency assessment) and the SF-36 scale.
- Neurocognitive status has been evaluated by NRS-R scale (neuro -comportemental rating scale) ,a specific scale for brain injury.

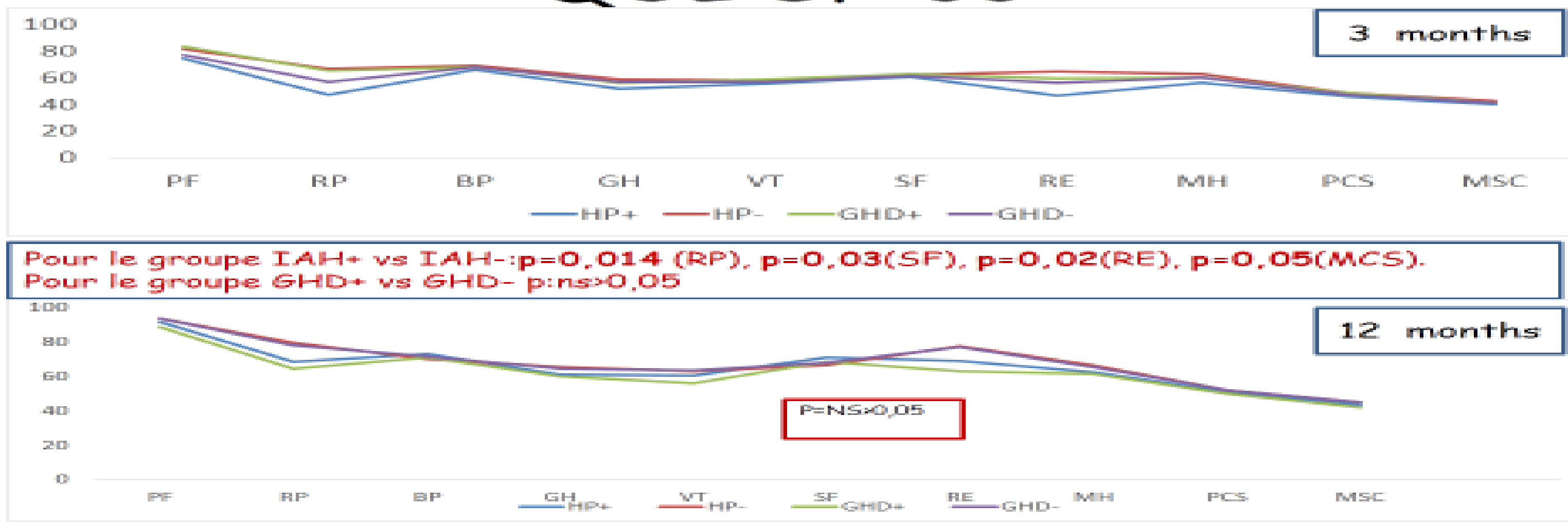
Frequency of PTHP

3 months after BI

12 months after BI



Comparison of HP+vs HP- QOL SF-36



Comparison of the group HP+ vs HP- QOL AGHDA

3mois post-traumatisme	HP+	HP-	p	GHD+	GHD-	p
AGHDA score	9,75±7,60	6,04±7,0	0,0012	8,70	7,45	0,30

12 mois post-TC	HP+	HP-	p	GHD+	GHD-	p
AGHDA score	7,07±6,24	3,62±4,56	0,001	6,21±6,07	3,78±4,68	0,013

HP: hypopituitarism

Comparison of HP+ vs HP-/GHD+ vs GHD-2-QOL (SF-36)-littérature review-

Dimensions SF-36	Kelly GH+ GH- p=ns	Wachter HP+ HP- P=ns-	Bavisetty HP+ HP-	Nouroulahi HP+ HP-	Present study GHD+ GHD-
PF	63,6 72,1	72,9 57,9	72 ,9 71, 3 P=0,96	P=0,018	88,95 93,68 P=ns
RP	21,4 47,2	100,7 100,7	45,8 49,1 P=0,83	P=0 ,023	64,47 78,16 P=ns
RE	47,6 83 ,3	80,6 63,2	69,4 80,2 P=0,49	P=0,023	63,16 77,01 P=ns
VT	47,7 63,7	53,3 48,7	57,1 63,1 P=0,44	P=0 ,025	56,05 63,51 P=ns
MH	57,7 77,4	64 63,2	68,7 76,5 P=0,18	Ns	61,47 65,78 P=ns
SF	60,7 76,4	77,1 71,4	63,5 76,9 P=0,1	Ns	68,42 68,25 P=ns
BP	55,0 76,2	46,8 44,1	70,2 78 ,2 P=0,304	Ns	70,95 71,43 P=ns
GH	57,9 76,9	61,2 60,1	62,9 75,1 P=0,048	P=0 ,004	59,95 64,7 p=ns

Comparaison HP+/HP- GHD+/GHD-(neurocognitive evaluation)

3 months post-TC	HP+	HP-	p
attention disorders	Abs min 40 17 mod 1 sev 0	Abs min 64 4 mod 6 sev 0	0,00042
Memory disorders	24 22 12 0	52 13 9 0	0,003
Mood swings	40 19 9 0	64 7 3 0	0,049
Irritability	33 18 7 0	60 12 2 0	0,0066

At three months evaluation:
There was no significant difference between growth hormone deficient and no deficient patients concerning neuro- cognitive evaluation

12 months after BI:
There was no significant difference between HP+ vs HP- et GHD+ vs GHD- concerning neurocognitifs evaluation for the 29 dimentions of the scale NRS-R

Comparison GHD+ vs GHD-: cognitive defects(littérature)

	Number	GHD+/GHD-	p	comments
Kelly	44	8 36	>0,05memory,concentration,anxiety, mental fatigue.	Relation GHD and depression
Wachter	53	13 40	>0,05 anxiety,irritability,dép ression ,fatigue	No relation GHD cognitifs troubles
Pavlovic	61	20 41	>0,05 memory,attention, executive function ,comprehension	No relation GHD cognitifs troubles
High	23	12 11	<0,05 mental flexibility,comprehensi on, motrice function	Relation GHD and cognitive defects
Léon Carrión	22	11 11	<0,05	Lien GHD attention, vigilance,memory,emo tion,comprehension,so ciability
Walter	22	12 10	<0,05	Relation GHD and cognitive defects
Bondanelli			0,05	Relation GHD and cognitive defects
Reimunde	19	11 08	<0,05 Comprehension , vocabbluairy, verbal function	Relation GHD and cognitive defects
Present study	116	20 94	P>0,05	No relation GHD cognitifs troubles

Comment &conclusion

Mean age was 32 years with male predominance. Traffic accident was the most frequent cause of BI. The frequency of PTHP at three months after injury was 44% with 31, 5% of corticotrop failure, 18% of GH deficiency, 6, 8% of gonadotropin deficiency, 6,8% of hypoprolactinemia ,1,5% of thyrotrophic deficiency and 3,8% of hyperprolactinemia. Predictive factors of occurrence of PTHP was skull base fracture, duration of intubation and coma and initial traumatic imaging. The prevalence of PTHP at twelve months after injury was 34,5% with 25% of corticotropic failure,17,2% of GH deficiency ,8,6% of gonadotropic deficiency ,5,17% of hypoprolactinemia ,0,9% of thyrotrophic deficiency and 8,6% of hyperprolactinemia. Predictive factors of Twelve months PTHP was the duration of intubation and coma and polytraumatism. A link was found between PTHP and impairment of quality of life at 3 months and one year using AGHDA and SF-36 scales. PTHP patients have more neurocognitive disorders using NRS-R scale than non hypopituitaric patients at three months but not at 12 months after the injury. The link between GHD ,hypopituitarism and alteration of QOL showed in this study has been previously reported by several authors.

The link between GHD ,hypopituitarism and neuro-cognitive defects Has not be showed in the present study like others. These abnormalities may be due to neurological damage due to head injury .

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