EVALUATION OF GROWTH HORMONE SECRETION AFTER STROKE

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Objectives:

According to recent studies, impaired secretion of growth hormone is a frequent finding after ischemic stroke.

The aim of our study was to compare various available GH stimulation tests in post-stroke patients.

Methods:

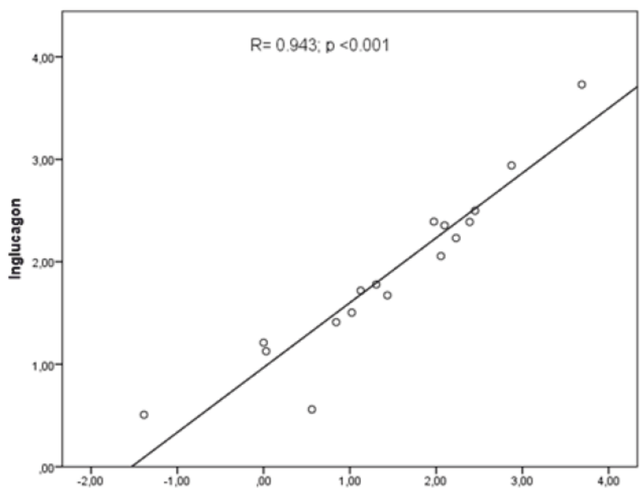
Seventeen patients were included in the study (12 males; mean age: 60.5 yrs; mean body mass index, 27.7 kg/m^2) with a mean 19.6 (± 7.3) months after stroke.

For screening, glucagon and small dose (0.15 µg/kg) GHRH-arginine (sdGHRH-A) stimulation tests were carried out in consecutive days.

If either or both of them were abnormal, a large dose (1 µg/kg) GHRH-arginine (ldGHRH-A) stimulation, as a standard confirmatory test was carried out, as well.

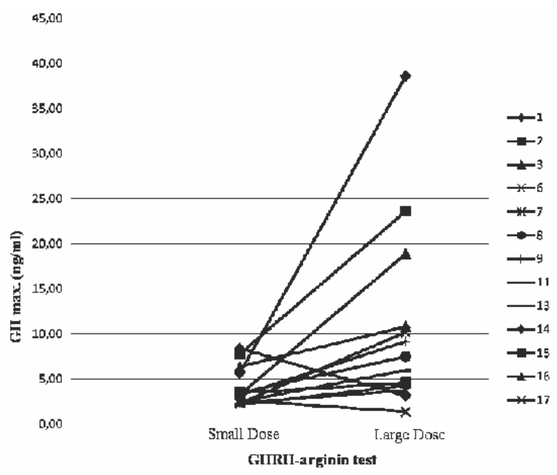
Basic parameters of the patients, IGF-I and results of GH stimulation tests

Patients	Age	Gender	Months from stroke	BMI kg/m^2	IGF-I ng/ml	IGF-I SDS	Max GH (ng/ml)		
							Glucagon	Small dose GHRH-A	Large dose GHRH-A
1	62	M	18	24	146	-0,3	7,2	5,6	38,6
2	72	F	26	27,8	56	-2,91	2,78	7,74	23,6
3	49	M	17	26,7	208	0,53	0,25	3,25	18,9
4	64	M	12	25,02	103	-1,3	17,7	8	N.D.
5	38	F	24	22	82,6	-2,43	40	14	N.D.
6	52	M	28	25,4	152	-0,37	3,08	2,65	1,36
7	68	M	25	26	112	-0,99	2,32	2,34	3,75
8	54	M	9	21,9	225	0,82	1	3,49	7,51
9	67	M	14	26.40	288	1,73	4,2	3,16	9,17
10	50	F	12	27,68	119	-1,12	11,6	18,9	N.D.
11	71	M	18	25,16	77,2	-2,01	3,69	2,46	5,99
12	74	F	37	31,55	218	1,03	8,15	3	N.D.
13	59	M	24	35,62	97,9	-1,54	1,03	2,11	4,29
14	61	M	24	36,2	116	-1,01	1,75	8,4	3,13
15	72	M	16	27,55	92,35	-1,46	9,31	3,47	4,57
16	58	F	13	30,4	116,37	-1,05	10,9	6,38	10,8
17	58	M	16	29,7	92,87	-1,71	7,81	2,3	10,2



Correlation of maximal GH responses in glucagon and small dose GHRH-A tests. GH values did not show a normal distribution and were logarithmically transformed

Stimulated individual maximal GH values in the small and large dose GHRH-A tests.



Patients	Large dose GHRH-A	
	Normal (N)	Abnormal (A)
Glucagon: N sdGHRH-A: A	7,2	38,6
Glucagon: A sdGHRH-A: A	2,78	23,6
Glucagon: A sdGHRH-A: N	0,25	18,9
Glucagon: N sdGHRH-A: N	7,81	10,2

Correlation of maximal GH responses in glucagon and small dose GHRH-A tests. GH values did not show a normal distribution and were logarithmically transformed

Results:

Maximum GH values reached in sdGHRH-A and glucagon stimulation tests were strongly correlated to each other ®= 0.943; p < 0.001), but neither showed association with ldGHRH-A results.

Furthermore, IGF-I levels did not correlate with stimulated peak GH values received in any of the three tests.

Comparing diagnostic interpretations of stimulation tests to each other, considerable discrepancies were detected in all directions, partly due to various cut-off values of the applicable criteria.

Conclusions:

Abnormal growth hormone secretion is common after stroke.

If this indication were being included in the screening for GH insufficiency, a larger trial is warranted to evaluate which tests are appropriate because a single GH stimulation test may not necessarily be enough in this population.

References:

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