Clinical characterization of acromegaloidism in a controlled prospective study

AUTHORS:

Catalina PF[1,4], Guanipa W[1,2], Suárez-González E†[2,4], González-Matías L[2,4], Álvarez E[3,4], Páramo C[3,4], Mallo F[2,4]

INSTITUTIONS:

[1] *Department of Endocrinology, University Hospital Montecelo of Pontevedra;*
[2] *Laboratory of Endocrinology, Centre for Biomedical Research (CINBIO), University of Vigo;*
[3] *Department of Endocrinology, University Hospital Xeral-Cies of Vigo;*
[4] *Institute for Biomedical Research of Vigo (IBIV), SERGAS – Uvigo, SPAIN.*

Instituto de Investigación Biomédica Ourense · Pontevedra · Vigo

OBJECTIVES

To evaluate a group of acromegaloidism patients in a prospective and controlled manner in order to better characterize the clinical manifestations of this condition, comparing them to those associated with acromegaly and normal healthy controls.

RESULTS

The subjects with acromegaloidism obtained similar ACA scores to acromegaly patients and both significantly higher than controls (6.83±0.51, 7.97±0.63 vs. 0.53±0.15, respectively; ANOVA, p<0.001).

USG explorations revealed similar alterations in acromegaly and acromegaloidisms, with thickening of the cartilage of the knee and increased cross section of median nerve.

Table II. Acromegaly Clinical Activity Index (ACAI) for the groups studied. Scoring of signs & symptoms

Sign/Symptom	(Score)	Acromegaly (1) Mean ± SEM	Acromegaloidism (2) Mean ± SEM	Control (3) Mean ± SEM	ANOVA p
Acral enlargement	(0-3)	2.43 ± 0.14 (*,†)	1.43 ± 0.16 (‡)	0.07 ± 0.07	<0.001
Hyperhidrosis	(0-3)	1.40 ± 0.29 (*)	1.13 ± 0.26 (‡)	0.00 ± 0.00	<0.001
Soft tissue swelling	(0-3)	1.80 ± 0.17 (*)	1.43 ± 0.19 (‡)	0.20 ± 0.11	<0.001
Asthenia	(0-1.5)	0.60 ± 0.16 (*)	0.63 ± 0.12 (‡)	0.03 ± 0.03	<0.001
Carpal tunnel syndrome	(0-1.5)	0.30 ± 0.14	0.17 ± 0.12	0.00 ± 0.00	0.15
Headache	(0-0.5)	0.20 ± 0.07 (*)	0.30 ± 0.07 (‡)	0.03 ± 0.03	<0.01
Hypertension	(0-0.5)	0.27 ± 0.07	0.33 ± 0.06	0.20 ± 0.07	0.36
Visceromegaly	(0-0.5)	0.20 ± 0.07	0.20 ± 0.07	0.03 ± 0.03	0.07
Glucose intolerance	(0-0.5)	0.33 ± 0.07 (*)	0.26 ± 0.07	0.10 ± 0.05	0.03
Arthropathy	(0-0.5)	0.23 ± 0.07 (*,†)	0.43 ± 0.05 (‡)	0.03 ± 0.03	<0.001
Acroparesthesias	(0-0.5)	0.17 ± 0.06 (*,†)	0.37 ± 0.06 (‡)	0.00 ± 0.00	<0.001
Hirsutism	(0-0.5)	0.03 ± 0.03	0.13 ± 0.06	0.03 ± 0.03	0.19
TOTAL SCORE	(0-15.5)	7.97 ± 0.63 (*)	6.83 ± 0.51 (‡)	0.53 ± 0.15	<0.001

The data are shown as the Mean ± SEM. Differences are significant when p<0.05 by one-way ANOVA followed by *Post-Hoc Bonferroni's test*: * 1 vs. 3, † 1 vs 2, ‡ 2 vs 3.

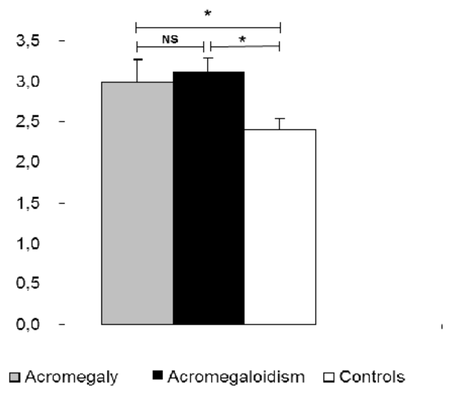


FIGURE 1. USG thickness of the articular cartilage (in mm).

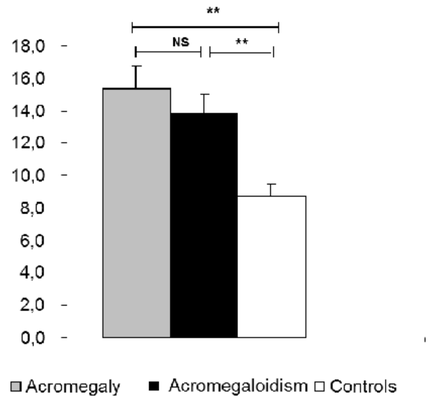


FIGURE 2. Ultrasonography CSA Median Nerve (in mm²).

SUBJECTS and METHODS

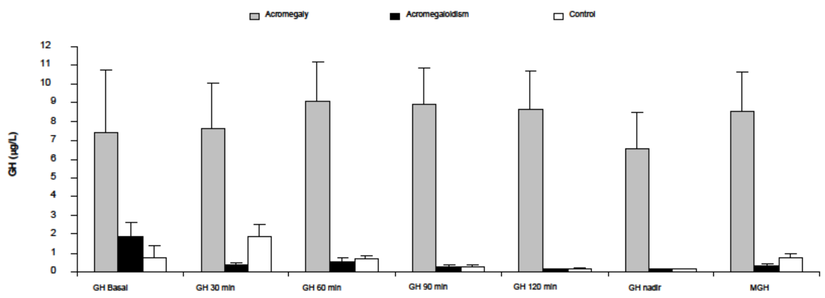
Subjects

15 caucasian acromegaloidism patients were recruited: 10 women and 5 men (aged 18-78 years old). Likewise, 15 acromegaly patients (10 women and 5 men, aged 34-75 years old) were also included in the study. In addition, a sex, age and body mass index matched group of 15 healthy subjects served as the control group.

Methods

A reduction in IGF-1 and GH serum levels below 1 ng/ml in the standard oral glucose test (SOGT) ruled out the diagnosis of acromegaly in acromegaloidism patients. The severity of acromegaly was evaluated using the Acromegaly Clinical Activity (ACA) index. Three groups of clinical signs or symptoms were considered and assigned different scores in function of their relevance: *Group I* was comprised of acral enlargement, excessive sweating and soft-tissue swelling, each evaluated with a score from 0 to 3, giving a maximum score for this group of 9; *Group II*, tiredness and carpal tunnel syndrome was scored from 0 to 1.5, giving a maximal score of 3; and *Group III*, headache, hypertension, visceromegaly, impaired glucose tolerance, arthropathy, acroparesthesia and hirsutism were each scored from 0 to 0.5, giving a maximal score for this group of 3.5. According to this index, the patient´s illness activity was classified as: *inactive*, 0 to 3.5; *mild*, 4 to 5.5; *moderate*, 6 to 7.5; and *severe*, above 8. The ACA index was always assessed by the same physician (W.G.) for all the subjects.

Ultrasonography (USG) studies were carried out on all the subjects to measure the articular cartilage thickness of knees and median nerve enlargement. All USG studies were performed by the same specialized physician (E.S.G.) who was blind to the patient´s diagnosis and clinical activity.



GH suppression by SOGT

CONCLUSIONS

Acromegaloidism is a nosological entity characterized by clinical manifestations of acral growth in the absence of biochemical alterations in the somatotrophic axis. The ACA index yielded similar scores for both acromegaly and acromegaloidism, and complementary exploratory techniques provided physical evidence of biological alterations involving joints (knees) and nerves (median nerve). Further studies will be needed to identify the etiopathogenic mechanisms responsible for these clinical signs of abnormal tissue growth in acromegaloidism patients in the absence of GH hypersecretion or increased IGF-1.

References

- Mims RB. Pituitary function and growth hormone dynamics in acromegaloidism. J Nat Med Assoc 1978; 70(12):919-923.
- Ashcraft MW, Hartzband PI, Van Herle AJ, Bersch N, Golde DW. A unique growth factor in patients with acromegaloidism. J Clin Endocrinol Metab 1983; 57(2):272-276.
- Flier JS, Moller DE, Moses AC, O´Rahilly S, Chaiken RL, Grigorescu F, Elahi D, Kahn BB, Weinreb JE, Eastman R. Insulin-mediated pseudoacromegaly: clinical and biochemical characterization of a syndrome of selective insulin resistance. J Clin Endocrinol Metab 1993; 76(6):1533-1541.
- Alvarez-Vazquez P, Rivera A, Figueroa I, Páramo C, García-Mayor RV. Acromegaloidism with normal hormone secretion associated with X-Tetrasomy. Pituitary 2006; 9:145-149
- Páramo C, Andrade MA, Fluiters E, Luna R, De la Fuente J, García-Mayo RV. Comparative study of insulin-like growth factor-I (IGF-I) and IGF-binding protein-3 (IGFBP-3) level and IGF-I/IGFBP-3 ratio measurements and their relationship with an index of clinical activity in the management of patients with acromegaly. Metabolism 1997; 46(5):494-498.
- Tagliafico A, Resmini E, Nizzo R, Bianchi F, Minuto F, Ferone D, Martinoli C. Ultrasound measurement of median and ulnar nerve cross-sectional area in acromegaly. J Clin Endocrinol Metab 2008; 93:905-909.
- Colao A, Marzullo P, Vallone G, Marino V, Annecchino M, Ferone D, De Brasi D, Scarpa R, Oriente P, Lombardi G. Reversibility of joint thickening in acromegalic patients: An ultrasonography study. J Clin Endocrinol Metab 1998; 83:2121-2125.

17 ECE 773--EP

Pituitary clinical

PABLO FERNANDEZ CATALINA

DOI: 10.3252/pso.eu.17ece.2015

Poster presented at: ECE2015 16-20 May 2015 DUBLIN, IRELAND 17th EUROPEAN CONGRESS OF ENDOCRINOLOGY