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Psychiatric Problems Compromise the Health-Related Quality of Life of Acromegalic Patients

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Abstract

Objective: To compare the health-related quality of life (HRQL) of acromegalics with healthy individuals and to investigate factors predictive of HRQL.

Design: Observational study with a comparison group. Patients from an endocrinology referral center attended from 2014 to 2017 were selected. The HRQL was evaluated using the Short Form Health Survey 36 (SF-36) and the Acromegaly Quality of Life Questionnaire (AcroQol).

Main Outcome Measures: Acromegalic patients have lower HRQL than healthy individuals, and psychiatric disorders are associated with a reduction in the HRQL of these patients. Socioeconomic factors can also impact quality of life.

Results: A 71 acromegalic patients and 76 healthy individuals were studied. Patient scores were much lower and ranged from 25% to 50% of the values from the comparison group. Patients' scores were comparable to the healthy Brazilian geriatric population, with a mean age of 28 years older. The median of the AcroQol inventory result was 53.4 (28.4-68.1) and the only clinical variable associated with low scores in this inventory was the presence of psychiatric disorders even after adjusted for sex (p= 0.021).

Conclusion: Acromegalic patients have HRQL more compromised than the healthy population and psychiatric aspects have a factor of worsening of HRQL. Mental health monitoring should be implemented in neuroendocrinology services, in favor of improving HRQL.

Keywords: Acromegaly; Quality of life; Comparative study; Clinical aspects

Introduction

Acromegaly manifests itself with physical deformities and multiple systemic complications, being more common between 35 and 50 years of age [1-5]. Individuals with acromegaly have a reduced life expectancy at 5 years compared to healthy people [5,6]. The HRQL of acromegalic patients was lower than that of the healthy population, mainly due to decreased work activity, chronic pain, psychological and psychiatric disorders, sexual problems, and discomfort with self-image [7-18]. These aspects are commonly associated with changes in growth hormone (GH) [19]. The orofacial alterations caused by acromegaly, such as prognathism and macroglossia, compromise socialization and self-esteem [9-18]. Thus, changes in self-image were associated with high scores for anxiety and depression, low self-esteem, poor

HRQL scores, and emotional apathy for acromegalic patients [20]. Even if treated, these patients present alterations, which suggest that the effect of GH excess on the central nervous system can be long-lasting and even irreversible. As such, this study aims to describe the quality of life (QoL) of patients with acromegaly, to compare them to healthy individuals (comparative group) and to investigate the predictors of patients' HRQL.

Material and Methods

This is an Observational study with a comparison group performed at a reference centre in Endocrinology and Diabetes in Brazil from 2014 to 2017. To evaluate the impact of acromegaly on the HRQL of affected patients, it was used a generic (Medical Outcomes Study-36 Item Short Form Health Survey- SF-36) and specific questionnaire (Acromegaly Quality of Life Questionnaire -AcroQol). The present study was approved by the local Research Ethics Committee, under the number CAAE: 56840516.4.0000.5544. All research participants signed the Informed Consent Form. The Statistical Package for the Social Sciences (SPSS, Armonk, NY, USA), version 21.0 IBM® was used to analyse and tabulate the data. The categorical variables were expressed by absolute and relative frequency, the continuous variables by mean and standard deviation, and the scores by median and interquartile range. The acromegalic group was divided according to the median AcroQol scores (median = 53), to investigate the factors associated with HRQL Student's t-tests, Mann Whitney, Pearson Chi-Square tests and Fisher exact test were used to compare the groups. After the initial analysis, the variables that showed a p-value < 0.20 between the groups divided according to the median AcroQol scores, were adjusted in the logistic regression (psychiatric disturbs and sex). P-values ≤ 0.05 were considered statiscally significant.

Results

The sample consisted of 71 acromegalic patients and 76 healthy individuals. The groups were similar (Table 1).

Table 1: *Sociodemographic characteristics of 147 subjects studied.*

VARIABLE	PATIENTS N = 71	COMPARISON GROUP N = 76	P
Age*	47.0 (±12,67)	47.4 (±12,33)	0.828
Feminine Gender †	46 (64.8%)	57(75.0%)	0.177
Family Income†			
0-1 0-1 Up to 1 Salary	18 (25.4%)	3 (3.9%)	<0.001
≥ 2 Wages	53 (74.6%)	73 (96,1%)	
Residence†			
Countryside	24 (70.6%)	23 (62.2%)	0.002
Urban Area	10 (29.4%)	14 (37.8%)	
* Results in mean and standard deviation - T-test † Chi- Square Test			

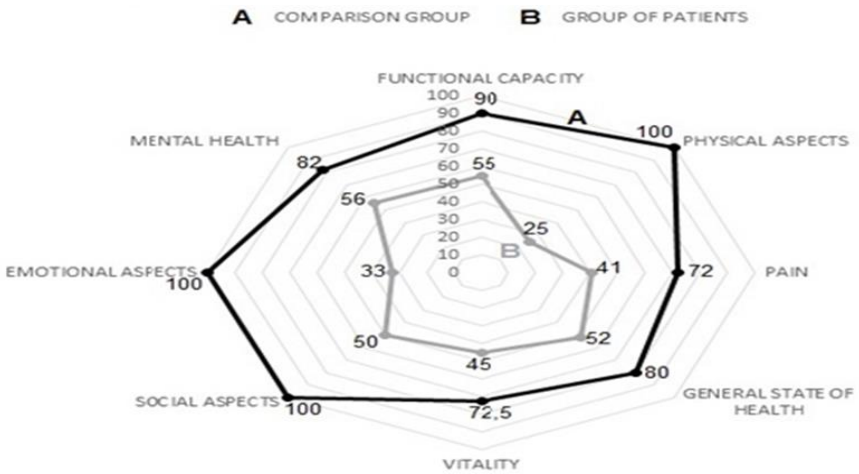

Figure 1: *Quality of life in the groups: mediano f scores of SF-36 (Mann-Whitney Test).*

Figure 1 compares the acromegalic scores with the comparison group. The median of the patient's SF-36 scales ranged from 25% to 50% of the comparison group scores (healthy). The median of the inventory result, AcroQol, was 53.4 (28.4-68.1). Values of $p < 0.001$.

The clinical characteristics of patients are described in Table 2.

Table 2: *Clinical characteristics in 71 acromegalic patients.*

VARIABLE	RESULTS
Hypertension	46 (64.3%)
Dyslipidemia	26 (37.1%)
Diabetes	40 (56.3%)
Obesity	24 (34.3%)
Psychiatric Disorders	11 (15.5%)
Carpal Tunnel Syndrome	2 (2.8%)
Diagnostic Time (years) *	5 (2-10)
Performed Surgery for Tumor Removal	57 (80.3%)
Using Somastatin Analogue	53 (74.6%)
Macroadenoma (> 1 cm)	60 (92.3%)
Uuncontrolled Disease	58 (82.3%)
* Results in the median and interquartile range	

The only variable associated with low inventory scores was psychiatric disorder (Table 3). Acromegalic patients who presented a psychiatric diagnosis in their medical records were affected mainly by depression in this study (Figure 2).

Table 3: *Description of clinical variables of the 71 acromegalics, according to Quality of life (AcroQol) CEDEBA, Brazil, 2018*.

	AcroQol			
VARIABLE	Md ≤ 53	**Md > 53**	**p**	P-adjusted
Age*	47.4 (± 11.8)	46.6 (± 13.5)	0.802	
Feminine Gender †	25 (73.5%)	21 (56.8%)	0.139	
Performed Surgery for Tumor Removal†	25 (73.5%)	32 (86.5%)	0.235	0.25
Using Somastatin Analogue†	23 (67.3%)	30 (81.1%)	0.276	
Hypertension†	21 (61.8%)	24 (64.9%)	0.81	
Dyslipidemia†	11 (32.4%)	15 (40.5%)	0.623	
Diabetes†	21 (61.8%)	19 (51.4%)	0.474	0.036
Obesity†	12 (35.3%)	13 (35.1%)	1	
Psychiatric Disorders†	9.0 (26.5%)	2 (5.4%)	0.021	
Diagnostic Time years) ‡	4.4 (1.0-10.3)	6 (1.2-11.5)	0.557	
Macroadenoma §	28 (93.3%)	32 (91,4%)	1	
Family Income‖				
0-1 0-1 Up to 1 Salary	10 (29.4%)	8 (21.6%)	0.451	
≥ 2 Wages	24 (70.6%)	29 (78.4%)		
Residence‖				
Countryside	24(70,6%)	23 (62,2%)	0.453	
Urban Area	10 (29,4%)	14 (37,8%)		

* Results in mean and standard deviation - T-test
† Spearman's Chi-Square
‡ Results in median and interquartile range - Mann Whitney
§ Fisher exact test
‖ Pearson ´s Chi-Square
¶ P-value with statistical significance < 0.05

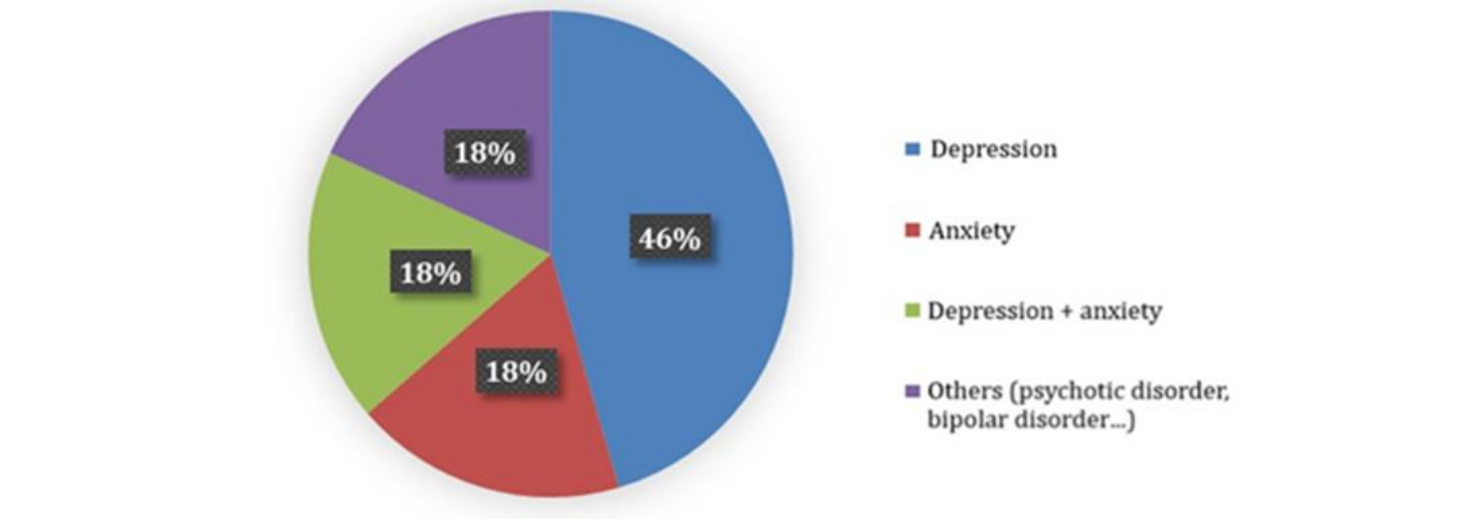

Figure 2: *Psychiatric disorders presente in acromegalic patients (n=11)*

Discussion

This study showed that acromegalic patients have lower HRQL than healthy individuals, and that psychiatric disorders are associated with a reduction in the HRQL of these patients. Socioeconomic factors can also impact quality of life. Although the mean age of the sample was comprised of adults, the median SF-36 scores of the patients, when compared to the results of the Brazilian healthy population, were also lower, being similar to the data of the elderly age group i.e., above 75 years (healthy Brazilian population almost 28 years older), as illustrated below Figure 1. Therefore, it can be concluded that acromegaly has an impact on HRQL as well as on functional capacity, thus compromising and aging the health scores (Figure 3).

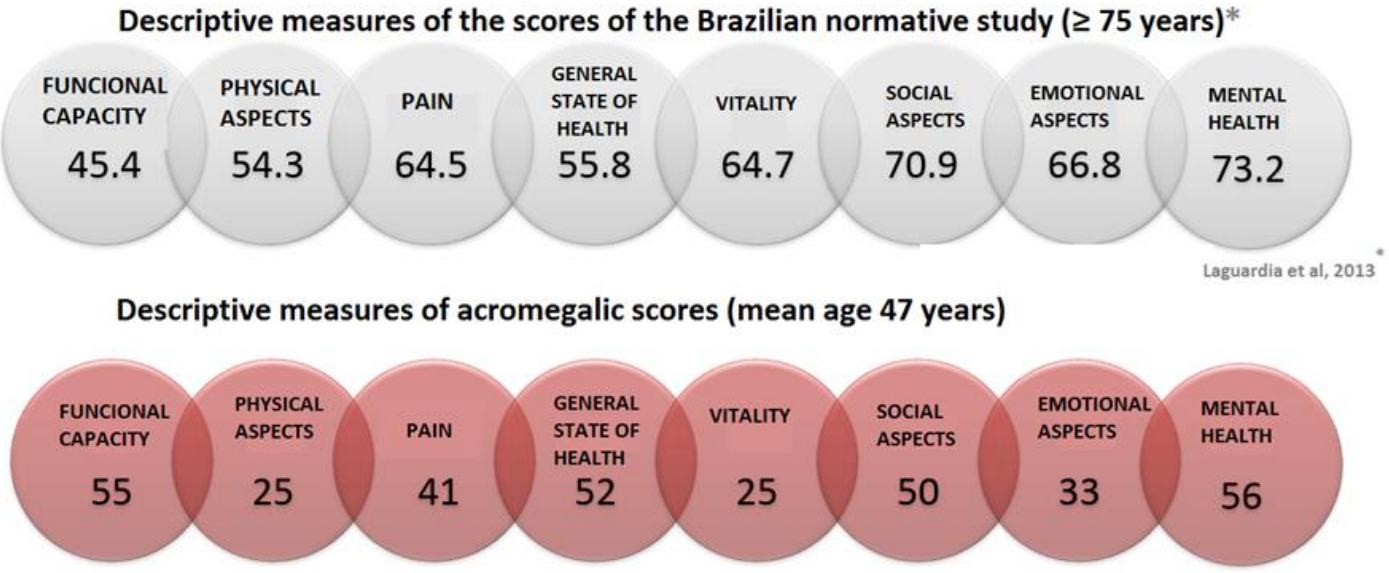

Figure 3: *SF-36 scores of patients in the sample compared to the normative study of the Brazilian population (over 75 years).*

Acromegalic patients present more psychological complaints compared to other dimensions of health [21,22]. The reduction of HRQL is predominantly driven by psychopathology rather than other biochemical factors in acromegalic patients. In the present study, the only clinical factor associated with HRQL reduction was the presence of psychiatric issues, which corroborates findings from the literature. The present study presented important differences between the control group and patients, regarding emotional aspects and mental health (SF-36 domains), in order to reiterate that acromegalic patients present more

psychic suffering than the general population. Regarding emotional aspects, the patients had a median score that was 67% lower than the comparison group. The median mental health of the patients was almost 32% lower than the median of the comparative group. The mean AcroQol scores in the patient sample were lower in relation to national and international studies, which may suggest interference with sociodemographic aspects [23,24].

Conclusion

In addition to the scientific implications, the clinical application of this research is the finding that important predictors of decreased HRQL are the psychiatric aspects, which are essentially modifiable predictors. Thus, mental health monitoring should be implemented in neuroendocrinology services, in favour of improving HRQL.

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Declaration of Interest Statement

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