DOCTORAL DISSERTATION

-ABSTRACT-

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EVALUATION CRITERIA OF WORKING CAPACITY IN PITUITARY PATHOLOGY

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INTRODUCTION .......................................................... 4

GENERAL CONTENTS

CHAPTER 1. ANATOMY OF THE SELLA AREA .................. 7

CHAPTER 2. PITUITARY TUMOURS – CLASSIFICATION ........ 22

CHAPTER 3. PITUITARY ADENOMAS .......................... 28

Epidemiology .......................................................... 28

Evolutional characteristics ....................................... 29

Structural characteristics ......................................... 30

Clinical relevance ................................................... 35

Diagnosis ............................................................... 40

CHAPTER 4. CRITERIA OF FUNCTIONAL CLINICAL DIAGNOSTIC AND WORK CAPACITY EVALUATION IN PITUITARY GLAND PATHOLOGY .... 44

CHAPTER 5. EVALUATION OF COMPLICATIONS MET IN PITUITARY GLAND PATHOLOGY ....................................................... 50

PERSONAL RESEARCH

CHAPTER 6. AIM AND OBJECTIVES OF THE STUDY ........ 68

CHAPTER 7. MATERIALS AND METHODS .................... 69

7.1. CLINICAL EXAMINATION ...................................... 71

7.2. PARACLINIC DIAGNOSIS ..................................... 73

Biochemic analysis ................................................. 73

Medical imagining methods ...................................... 75

Neuro-ophtalmic examination ................................... 77

Examination of cardiovascular apparatus through the EKG effort test 77

Evaluation of pulmonary function through spirographic method ...... 90

Electroencephalography .......................................... 92

Hamilton depression scale ....................................... 108

7.3. PROFESSIONAL ANAMNESIS ............................. 110

WORK PLACES CHARACTERISTICS .............................. 114

7.4. MATHEMATICAL STATISTICS PROCESSING ........... 134

7.5. PERSONAL CASUISTRY ....................................... 138
ANALYSIS OF STUDY GROUPS........................................138
TERAPEUTICAL PROCEDURES........................................141
CHAPTER 8. RESULTS OBTAINED ..................................148
CHAPTER 9. RESULTS INTERPRETATION .............................217
CHAPTER 10. CONCLUSIONS........................................227
BIBLIOGRAPHY.....................................................229
INTRODUCTION

**Key Words:** pituitary adenoma, work capacity, invalidity level

Pituitary gland represents a common area for tumoral changes, being the origin of 15% of the intracranial tumours total. From the histological point of view these tumours are mainly benign, coming out of the hormone secretive cells, situated in the anterior lobe. Thus, adenomas histology is a quite deceiving characteristic of their biology; their regular invasion into critical neural structures along with uncomfortable endocrinopathies that they carry make us consider that pituitary tumours are an important and frequent source of morbidity, invalidity and sometimes mortality.

Therefore, the purpose of this study is to specify clinical and paraclinical characteristics of clinical debut, evolutional characteristics and also secondary complications of pituitary pathology (secreting and non-secreting adenomas and pituitary insufficiency, and determining the way in which this pathology influences the evolvement of a normal life, respectively the impact on work capacity)

This study proposes the following objectives:
1. To analyse clinical and debut criteria of pituitary adenomas:
2. To distinguish multiple paraclinical aspects: imagistic, hormonal, ophtalmological, neurological, anatomopathological;
3. To evaluate secondary complications of pituitary pathology;
4. To enclose the patient into a certain degree of invalidity being performed after a complex evaluation, by adding up all the complications appeared at the level of various systems and apparatus

This study was performed at Craiova Emergency County Hospital, having a retrospective component (after observation files) and a perspective one (by direct supervision), over a 6 years period (2004-2009)
ANALYSIS OF THE STUDIED GROUPS

Taking into consideration the diagnosis criteria and complications evaluation, respectively registering as disabled with a certain invalidity degree of patients with pituitary tumours and patients with pituitary insufficiency, I studied 2 groups of patients:
- Group of patients with pituitary adenomas (80) - group A
- Group of patients with pituitary insufficiency - group B

The group with adenomas (A) was represented by 80 patients with ages from 15 (a school student with non-secreting adenoma) and 73.

The distribution according to age of PRL secreting adenomas showed a higher incidence at younger people. The minimum age in this group was 18 for the PRL secreting tumours while the maximum age was 60, the average age was 37,93 with a standard deviation of 10,11.

The distribution on age groups of GH secreting adenomas showed a higher incidence at the age over 40. The minimum age at patients with acromegaly was 30, the maximum one was 73 and the mean value 52,16 with a standard deviation of 12,53.

Non-secreting adenomas had a higher incidence at the age group 40-49-10 cases (12,5 %), followed by the age group 50-59- 9 cases (11,25%), 7 cases (8,75) appeared at 30-39 years and the rest of 5 cases appeared at ages over 60.

In group B (25 patients with post-hypophysectomy pituitary insufficiency) the age limits were between 15 (a school student with non-secreting pituitary adenoma) and 69 91 patient-4%).

According to sex distribution of patients with pituitary adenomas, there were included in this study 56 women and 24 men, which correspond to 70 %, respectively 30% from the patients. In group A there was the following sex distribution: 23 women with prolactinoma and 4 men with PRL secreting adenoma. During this study there were 6 macrolactinomas (3 women and 3 men), 1 macrolactinoma at men and 20 microlactinomas at women. As for the acromegaly people, there were: 11 women and 8 men. In the speciality literature, it is mentioned a proportion of 1/1 women/men (in my study there was a slightly difference in favour of acromegalic women)

Non-secreting adenomas were represented by 22 women (27,5%) and men (15%). In group B with pituitary insufficiency there were 10-women (40%) and 15 men (60%).

RESULTS OBTAINED

A complete diagnosis is based on determining a clinical diagnosis and a functional one for the evaluation of working capacity, respectively the invalidity degree. In order to determine the invalidity degree, there must be done the general clinical examination, endocrinological one, and also the social and professional anamnesis, following the criteria of falling in an invalidity degree, according to the Official Monitor –HG 400/2001 (116).
HORMONOLOGY

The first step of pituitary adenoma diagnosis was represented by pituitary hormones dosing: PRL, GH, TSH and testosterone (the last two hormonal doses were made in the case of non-secreting adenomas)

MEDICAL IMAGING

Morphological examination of the studied patients started with the X-ray picture of skull profile. It is a morphological screening method and it represents the routine investigation of patients susceptible of pituitary adenoma.

In group A:
- sa normal at 33(41, 25%) patients;
- Sa enlarged in all the diameters, ballooned, without destruction of sellar dorsum at 34% (42, 5%) patients.
- sa large with destruction of sellar dorsum at 10 patients;
- Sa barely destroyed with the interruption of bone line (invasion sign) at 3 patients.

Evaluation of pituitary adenomas and the extension degree was made through the tomographic computer method.

In group A, 21, out of 27 prolactinomas studied, are microprolactinomas (27,5%) (probably because of the early diagnosis of specific indication and symptoms and only 6 (6,25%) macroprolactinomas. Though in the present study (as in all expertises) 23 of the prolactinomas were met at women (28,75% out of the adenomas total) and only 4 prolactinomas at men (5% of the adenomas total), we notice a higher incidence of the last macroprolactinomas (3 out of 6 macroprolactinomas). Regarding GH secreting adenomas, 11 were macro and 8 were microadenomas, and in the case of non-secreting ones 22 macroadenomas and 12 microadenomas.

In this study macroadenomas are frequent among the non-secreting tumours, a possible explanation being mostly the late diagnosis, when the symptoms given by the tumoral syndrome appear.

OPHTALMOLOGIC EXAMINATION

Visual disorders are frequent in pituitary adenomas and they mostly depend on the size of the tumour.

In this study, 22 patients (27, 5%) out of 80 with pituitary tumours had their visual field affected.

In group A diminution of visual acuity was registered at 16, 25% of acromegaly patients, 13,75% of the patients with non-secreting pituitary tumours and at only 5% of the patients with PRL secreting tumours, being connected with the reduced sizes of the last ones (microprolactinomas prevalence)

In group B of patients with pituitary insufficiency, patients that come mostly from the studied group A, after they were treated by hypophysectomy, radiotherapy, chemotherapy and or combinations between all these, there was a percentage of 50 at patients without ablation of visual field, 44% with a CV change, respectively 4% (1 patient) with bilateral optic atrophy (caecity) installed post hypophysetomy associated with radiotherapy.
THE RESTING EKG

From 19 patients diagnosed with acromegaly, 1 patient didn’t have the EKG recording, 4 patients (4%) had cardiomegaly with associated ischemic cardiopathy, 5 patients (6.25%) presented ischemic cardiopathy symptoms and 9 patients (11.25%) had a normal resting EKG.

Regarding patients with PRL secreting adenomas, only 4 patients (5%) had ischemic symptoms. The rest of patients had a normal EKG resting or didn’t show any cardiac ischemia symptoms, so I considered unnecessary to explore cardiac function taking into consideration also the young age of these patients.

At patients with non-secreting adenomas, when taking the resting EKG I met 1 patient (1.25%) with ischemic cardiopathy and HVS-patient being highly hypertensive and 8 (10%) patients with ischemic cardiopathy; the rest of 25 patients (31.25%) had a normal resting EKG (showing no symptoms specific to cardiac affection).

14 patients (56%) out of 25 from group B didn’t show any cardiac ischemia, 8 patients (32%) had repolarisation phases changes and 3 patients (12%) had HVS symptoms and changes of the repolarisation phases.

THE EKG EFFORT TEST

In the case of PRL secreting adenomas, 18 patients (22.5%) didn’t do the effort test, being young patients, without any subjective symptoms 1 patient (1.25%) had the sub-maximal test negative, 1 patient (1.25%) reached the maximum frequency predicted and 4 patients had the sub-maximal test positive being directed towards coronarography.

As far as the acromegaly patients are concerned: 1 patient (1.25%) had the sub-maximal test negative, 6 (7.5%) positive, patients being directed towards coronarography, at 3 patients (3.75%) the test was unconvincing (it didn’t reach 85% of the maximum predicted frequency) because the patients accused asthenia physically marked and great bone pains, 4 patients (5%) reached the maximum frequency predicted and 5 patients (6.25%) didn’t take the effort test.

Regarding the non-secreting adenomas, in the context of dyslipidemia associated with hypothyroidism and hypertensive pathology, 6 patients (7.5%) had the submaximal test positive, being directed towards coronarography, 8 patients (10%) test wasn’t performed, while at 2 patients the test was inconclusive, patients accusing asthenia physically marked - secondary to corticosuprarenal insufficiency.

At patients with pituitary insufficiency, the cardiovascular evaluation was made only through resting EKG and clinical symptomatology, considering unnecessary taking the effort test EKG because of the complications present at these patients especially because of the corticosuprarenal insufficiency.

SPIROMETRY

It was performed on acromegaly patients, the pulmonary complications being a factor of increasing the mortality.

In the present study 18 patients, out of 19 with acromegaly, took the breathing functional exploration test.

After measuring the VEMS, the following resulted: 10 patients (52% of the acromegaly patients) didn’t present obstructive ventilatory dysfunction, 6 patients (32%)
presented a mild obstructive ventilatory dysfunction and 2 patients (11%) presented a medium ventilatory dysfunction.

**EEG EXAMINATION**

In group A, EEG recording was performed only to the patients with macroadenomas with suprasellar expansion.

In the lot with 80 pituitary adenomas, 3 patients (3.75%) presented changes at EEG recording. Out of these, 2 patients (2.5%) had a EEG line of irritative type and a patient with a voluminous non-secreting pituitary tumour (60 mm in the largest diameter) with suprasellar extension and intracranial hypertension (HIC) had two types of EEG line: irritative and lesional.

2 (8%) patients out of 25 with pituitary insufficiency, operated through transcranial abort, developed epilepsy determined not only clinical but also by recording the EEG line which presented two types of changes: irritative and lesional.

**PSYCHOLOGICAL EXAMINATION**

In order to perform the psychological examination, I used the evaluation scale for depression (Minulescu M-2000).

After psychological testing at patients with pituitary tumours from group A, I obtained a percentage of 3, 75 for patients with prolactinoma, that presented symptoms of mild depression, 2,5% presented medium depression and 27,5% of patients with prolactinoma presented no symptoms of depression. No patient with PRL hypersecretion in the studied lot had severe depression.

Regarding non-secreting tumours, 7,5% of patients had a mild depression, 5% medium depression and 30% of the patients with non-secreting tumours didn’t show any signs of depression.

10% of the patients with GH secreting pituitary tumour had a severe depression (connected with the dysmorphism presented at these patients), 6,25% had a medium depression, 5% a mild depression and only 2,5% of the acromegaly patients didn’t present any depressive symptoms. The risk of depression appearing at acromegaly patients is higher than the risk of depression appearing at other pituitary affections.

In lot B, with patients that presented pituitary insufficiency, 52% were evaluated by means of psychological testing and the rest of 48% didn’t affect the psychological testing-the study of these patients being mostly retrospective, according to observation files. 12 % of the patients who were tested, had a severe depression, 20% medium depression and the other 20% had a mild depression.

**PROFESSIONAL AND DISEASE ANAMNESIS**

Out of 80 pituitary adenomas, 2 patients (2,5%) were school students, 19 (23,75%) had a simple professional training- unqualified workers (up to the 10th grade or less), 39 had only secondary school (48,75%) and 20 (25%) had a university education.

In the lot B of the patients with pituitary insufficiency I had: 1 school student (4%), 3 workers with no qualification (12%), 15 patients without a university education and 6 patients (24%) with university education.

After performing the socio-professional anamnesis, in lot A, I had:
3 patients with prolactinoma pensioned with the 3rd degree of invalidity (3, 75%), another 3 patients with macroprolactinoma pensioned with the 2nd degree of invalidity (3, 75%), 13 patients employed (16.25%), 8 (10%) patients with no incomes because they didn’t attain the medical or administrative criteria - didn’t pay the minimum pension contribution - so that they could be registered in an invalidity degree. In the subgroup of patients with prolactinoma I didn’t have any patient with age limiting pension, due to the young age of these patients;
- even number of patients with GH secreting adenoma pensioned with 3rd and 2nd degree of invalidity (4 patients-5%), 4 patients (5%) pensioned at the age limit - because of the seniority of these patients - and 7 patients (8.74%) in employment.
- 5 patients (6.25%) with non-secreting adenoma pensioned with the 3rd degree of invalidity, 4 patients (5%) pensioned with the 2nd degree of invalidity, 4 patients (5%) pensioned at age limit, 17 patients (21.25%) in employment and 4 patients (5%) with no incomes.

In lot B I had the following socio-professional categories:
- 7 retired patients (28%) with the 3rd degree of invalidity;
- 3 retired patients (12%) with the 2nd degree of invalidity;
- 1 retired patient (4%) with the 1st degree of invalidity – patient with postradiotherapy caecity;
- 3 patients (12%) retired at the age limit;
- 8 patients (32%) in employment;
- 3 patients (12%) with no income, didn’t attain the medical or administrative criteria (minimum pension contribution) in order to be registered with invalidity degree.

Regarding the patients with pituitary adenomas, the statistical weight of retired patients with university education was much more reduced than that of patients with secondary education or less.

In group B, I didn’t have any patients with university education medically retired, I had a patient with secondary education pensioned with the 1st degree of invalidity (the patient presented postadenectomy and postradiotherapy bilateral caecity), 3 patients with secondary education that had the 2nd degree of invalidity, 5 patients with secondary education that had the 2nd degree of invalidity, 5 patients with secondary education that had the 3rd degree and 2 patients with inferior education that had the 2nd degree of invalidity. Without any incomes there were only 2 patients that didn’t attend to necessary criteria for medical pensioning and a school student.

CONCLUSIONS

1. Pituitary tumours represent a larger percentage of intracranial tumours and studying the clinical, pathogenetic and therapeutic characteristics represent not only a scientific problem but also a practical one in order to find new efficient methods of diagnosis and therapy.

2. Prevalence of pituitary adenomas at adults is higher at female sex (70% at women and 30% at men) and has a peak incidence situated between 30-40 years for prolactinomas, respectively 40-60 years for GH secreting tumours and non-secreting tumours.
3. From the clinical point of view pituitary tumours have manifestations connected to higher or lower hormonal secretion and manifestations connected to compression borne by the tumour on the aside structures. Clinical symptoms and signs with the highest diagnosis specificity were: dysmorphism present at 19 patients with acromegaly (18%), sexual dynamic disorders - present at 80,1% of men, galactorrhea present at 14,28% of female patients, menstrual cycle disorders present at 26,6% of female patients, visual disorders and cephalalgia present at 31,4% of patients. 

4. Performing the hormonal dosage is useful for determining the diagnosis and appreciating the efficiency of treatment, determining the rate of tumoral remission and tracking down the relapses and evaluating the posthypophisectomy pituitary insufficiency.

5. At present, in order to determine the radiological diagnosis and sellar lesions, there are used investigations less evasive and more precise such as CT and RMN. RMN became the basic investigation of sellar and para-sellar tumoral pathology. 47,5% had macroadenoma (with a tumoral diameter over 10 mm) and 52,5% had microadenoma (tumoral diameter below 10 mm).

6. EEG exploration performed at patients that presented macroadenomas with suprasellar expansion and respectively at patients with posthypophysectomy pituitary insufficiency distinguished irritative changes in EEG line at 3,75% of patients with macroadenoma, and 8% of the patients operated transcranial presented epilepsy remarked not only clinically but also on EEG that had irritative and lesional changes.

7. The effort test at cycle ergometer, that tests a moment in a working day in laboratory conditions, that allowed us to evaluate work capacity, was performed on 61,25% of the patients with pituitary adenomas. 7,5% of the acromegaly patients had a positive sub-maximal effort test being directed towards coronarography.

8. In order to evaluate the work capacity at patients with pituitary pathology I studied on one hand, the complications determined by the pituitary pathology and their evolution stage, and on the other, physical, mental and environmental demands of the working area.

9. Registering as disabled (with a certain invalidity degree) presupposes respecting an algorithm: determining the clinical diagnosis followed by a functional evaluation expressed through elaborating the functional diagnosis and at last, after knowing the morpho-functional arrear, appreciating the work capacity.

10. In the group with pituitary tumours 28,75% of the patients were medically retired (15% of the patients had the 3rd degree of invalidity and 13,75% of the patients had the 2nd degree), most patients being acromegalic because of the higher number of complications that these people had, and in the group with pituitary insufficiency 44% had a medical pension (28% had the 3rd degree, 12% had the second degree and 4% had the 1st degree – because of the postradiotherapy caecity).

11. In both groups the percentage of patients medically retired with secondary or inferior education was highly superior to that of patients with university education and a high percentage of patients with pituitary tumours (46,25%) respectively 8% of those with pituitary insufficiency didn’t attend to medical or administrative criteria of medical pensioning – the minimum fee.
# CURRICULUM VITAE

## Personal information

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## Work experience

<table>
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<th>Year</th>
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| 2007          | - UMF Craiova, Faculty of Medical Assistance and Midwives |
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- intern
1997-1991
-Faculty of Medicine Craiova

1990-1986
-“Elena Cuza” Secondary School

Published work:


**Member of professional associations**: Romanian Medical Experts Association, Romanian Association of Geriatricians,

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Romanian

*Other languages*  
French - intermediate  
English - elementary

*Social skills and competences*

Communicativeness, sociability, patience, involvement - abilities acquired in teaching experience

**Organisational skills and competences**  
Organized, Flexible, good manager, team work ability

**Computer skills and competences**  
MS OFFICE

**Driving licence**  
B category

**REFERENCES**  
Available upon request