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Medical students' level of knowledge about Cushing syndrome

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ABSTRACT

Introduction: Cushing syndrome is a set of signs and symptoms of diverse origin that translate the exposure of tissues to a chronic excess of cortisol. Objective: to determine the level of knowledge of medical students about Cushing Syndrome. Method: an observational, descriptive, cross-sectional study in the period from May 1 to May 20, 2021. The universe consisted of 100 individuals from the third to the sixth year of the major. Variables such as etiology, pathophysiology, clinical manifestations, and diagnosis of Cushing Syndrome were analyzed. The survey technique was performed using a questionnaire-type instrument, it was applied virtually through Google Forms. The responses were archived in an email. Results: most of the students corresponded to third year (45 %). The level of knowledge about the etiology of Cushing Syndrome was fair with 41 %, while about the pathophysiology, clinical manifestations and diagnosis it was adequate with 63 %, 46 %, and 52 % respectively. Conclusions: there were difficulties in understanding the etiology of Cushing Syndrome, not being the case in the case of clinical manifestations and diagnosis. However, pathophysiology is the aspect where the greatest knowledge is verified.

Keywords: Knowledge; Students; Medical; Cushing syndrome.

Cushing Syndrome (CS) is a set of signs and symptoms of diverse origin that translate the exposure of tissues to a chronic excess of cortisol or hypercortisolism. Patients often present with weight gain with central obesity, facial roundness and plethora, proximal muscle weakness, and thinning of the skin. They also develop metabolic complications including diabetes mellitus, dyslipidemia, metabolic osteopathy, and hypertension[1,2,3].

This syndrome may be caused by adrenocorticotropic hormone (ACTH) secreting pituitary tumors, due to the autonomous overproduction of adrenal cortisol; and, infrequently, by ectopic tumors that secrete ACTH[4,5,6]. ACTH-independent CS accounts for 15 % to 20 % of cases[7,8].

Exposure to exogenous corticosteroids is the most common cause of the syndrome. For its part, Cushing Disease, which is a hypercortisolism caused by an ACTH-secreting pituitary adenoma, is the most common cause of endogenous CS, and is responsible for 70 % to 80 % of cases[9].

In 1912 Harvey Cushing described the clinical characteristics of what he classified as a "multiglandular syndrome": "... syndrome of painful obesity, hypertrichosis and amenorrhea, with hyperdevelopment of secondary sexual characteristics, accompanied by a low degree of hydrocephalus and increased brain tension. Pituitary, adrenal, pineal or ovary?"[10,11,12].

For many years it was debated whether the cause of the disorder lay in the adrenal or in the pituitary until, in 1950, Julius Bauer concluded that it could originate in a pituitary tumor or an adrenal tumor, reserving since then the name of "Cushing Disease"(CD) only for the pituitary variant. In his article, Bauer also mentions ectopic Cushing syndrome (ECS) whose clinical characteristics and pathogenic mechanisms were clarified in subsequent publications based on a work by Christy, describing in 1961 the presence of elevated ACTH levels in patients with tumors. pulmonary[13].

A study in Denmark followed 166 patients with CS for 11 years, finding an incidence of two cases per million populations per year. Of the 166 patients, 139 had benign disease. There was a mortality rate of 16.5% from the 8 year follow up period, with the majority of deaths occurring in the year after the initial diagnosis, often before the initiation of treat-

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ment. The causes of death of patients with Cushing syndrome in the study included severe infections, cardiac rupture, stroke, and suicide[14,15].

A study in Spain found 49 cases of Cushing Syndrome over 18 years, with an incidence of 2,4 cases per million inhabitants per year and an incidence of 39,1 cases per million. The standard death rate in this study was 3,8 ; in addition to an increase in morbidity regimes[4,16].

However, the incidence of subclinical CS can be underestimated in certain population groups, such as patients with osteoporosis, diabetes mellitus, or hypertension. One study found that of 90 obese patients with diabetes mellitus, three had CS, yielding an incidence of 3,3 %, considerably higher than the incidence reported in population-based studies[17].

Women are more likely to be affected by the syndrome than men, with a risk ratio of approximately 3:1. There is no genetic link that implies an ethnic susceptibility to the condition. Estimates of the incidence of CS are imprecise and probably underestimate the incidence of iatrogenic CS, undiagnosed mild hypercortisolism, and ectopic corticotropin syndrome[5].

In addition to being a representative clinical entity in the healthcare environment, its knowledge is basic in the study program of Clinical Propaedeutic and Medical Semiology and in that of Internal Medicine.

In this sense, the objective of this research was to determine the level of knowledge of medical students about Cushing Syndrome at the University Of Medical Sciences of Holguín, in the period from May 1 to May 20, 2021.

METHOD

Type of study: an observational, descriptive, cross-sectional study was carried out on a group of medical students at the University of Medical Sciences of Holguín, in the period from May 1 to May 20, 2021.

Universe and sample: the universe was made up of 100 medical science students who showed their willingness to participate in the study, who were in their third to sixth year of Medicine. The students who answered the questionnaire were included. It worked with the entire universe.

Variables and data collection: the survey technique was used using a questionnaire-type instrument (Available in Complementary Files to this article), which was made up of four sections (etiology, pathophysiology, clinical manifestations and diagnosis) and several items of 12, 11, 5 and 10 respectively, constituting the source of obtaining the information. It was prepared by the authors of the research, and was validated by the senior professor of Internal Medicine at the "Vladimir Ilich Lenin" University Hospital in conjunction with the Ethics Committee and Scientific Council of the university.

It was applied virtually through the Google Forms platform, in which an expressive and affordable language was used, making use of the multiple-choice format in a large part of the questions. The responses were archived in an email.

The following variables were included in the instrument: academic year, level of knowledge about etiology, pathophysiology, clinical manifestations, and diagnosis of Cushing Syndrome.

Statistical processing: for the processing and analysis of the information, a database was created in Microsoft Excel, which allowed the calculation of the absolute and relative percentage frequencies. Descriptive statistics were used.

To determine the knowledge, the automated scoring provided by the survey on this platform was considered by classifying them as adequate, regular and inappropriate, according to the number of correct items in each section (Table 1).

Table 1. Distribution of the classification of the level of knowledge about Cushing syndrome according to correct items.

Aspects of Cushing Syndrome	Total items	Correct (right item)	Regular (right items)	Wrong (right items)
Etiology	12	8-12	5-7	Fewer than 4
Pathophysiology	11	7-11	5-6	Fewer than 4
Clinical manifestations	5	4-5	3	Fewer than 2
Diagnosis	10	8-10	5-7	Fewer than 4

Source: Google Forms.

Ethical standards: the study was approved by the senior professor of Internal Medicine at the "Vladimir Ilich Lenin" University Hospital. During the work, no therapeutic intervention was carried out and the confidentiality of the data obtained was respected. It was kept as a guide to respect the ethical principles promulgated by the World Medical Association in the Second Declaration of Helsinki and in the Cuban ethical standards. It had the authorization of the Medical Ethics Committee and the Scientific Council of the University.

RESULTS

Most of the students were in their third year of their major (45 %).

Most of the students (41 %) had regular knowle-

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dge about the etiology of Cushing Syndrome; while the pathophysiology, clinical manifestations and diagnosis were adequate with 63 %, 46 % and 52 % respectively (Table 2).

Table 2. Distribution of students according to the level of knowledge about Cushing Syndrome. University of Medical Sciences of Holguín. May 2021

Level of knowledge about Cushing Syndrome	Adequate No. (%)	Fair No. (%)	Inadequate No. (%)
Etiology	26 (26)	41 (41)	33 (33)
Pathophysiology	63 (63)	33 (33)	4 (4)
Clinical manifestations	46 (46)	31 (31)	23 (23)
Diagnosis	52 (52)	21 (21)	27 (27)

Source: Questionnaire applied.

DISCUSSION

Cushing Syndrome is a clinical entity commonly seen in Internal Medicine and Endocrinology practices. For this reason, professors always emphasize knowledge of its clinical characteristics[1].

The authors consider that medical students had a medium level of knowledge about this syndrome. Most of the respondents belong to the third year and the minority to the sixth, which may be subject to the fact that it is in the third year that Cuban students receive the course of Internal Medicine in its entirety, for which they were the most interested in answer the questionnaire; quite the opposite of the terminal year students who had a high study load.

Etiology was the aspect with the worst results in knowledge, which could be due to the fact that since this syndrome is a polyglandular disease, there are many confusing elements of which element can be an etiological factor and which cannot. In this sense, workshops are proposed to study and debate the subject.

Specifically, pathophysiology was the element that showed the highest level of knowledge in the students, which is very interesting because in the student environment, pathophysiology is a fearful and complicated aspect. However, the semiogenesis of this syndrome is precisely one of its distinctive and characteristic elements, which is why students tend to study this section generally in depth.

When the clinical manifestations and diagnostic methods were analyzed, an adequate level of knowledge was found, this is due to the fact that in the course of Internal Medicine, students give great importance to clinical manifestations, diagnosis and treatment, since they constitute the most important aspects evaluated in exams.

For a general practitioner, these constitute the basic knowledge of each clinical entity, those necessary to achieve an accurate diagnosis, a correct development in an Emergency Room, and even, at a certain moment, save a life.

Authors were able to compare the study with a level of knowledge in medical science students about COVID-19 where the same verification schemes were used (say true or false and multiple selection), we were able to verify that the level of knowledge of these students in COVID-19 were deeper than in Cushing Syndrome. The authors justify this result since it is no less true that due to the epidemiological situation that the world has experienced in the last two years, this disease has been extensively studied and investigated by most of our medical science students[18].

CONCLUSIONS

There were difficulties in understanding the etiology of Cushing Syndrome, but this was not the case of clinical manifestations and diagnosis. Pathophysiology is the aspect where the greatest knowledge was found.

AUTHORSHIP

SMFS: conceptualization, methodology, validation-verification, writing-original draft, writing-review-editing. JPCS: research, validation-verification, visualization, writing-review-editing. OASR: formal analysis, administration, supervision, writing-review-editing. ASV: conceptualization, methodology, validation-verification, formal analysis, supervision.

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Nivel de conocimiento de estudiantes de medicina sobre el síndrome de Cushing

RESUMEN

Introducción: el síndrome de Cushing es un conjunto de signos y síntomas de diverso origen que traducen la exposición de los tejidos a un exceso crónico de cortisol. Objetivo: determinar el nivel de conocimiento de los estudiantes de medicina sobre el síndrome de Cushing. Método: estudio observacional, descriptivo, de corte transversal en el período del primero al 20 de mayo de 2021. El universo estuvo constituido por 100 estudiantes de medicina de tercero hasta sexto año de la carrera. Fueron analizadas variables como nivel de conocimiento sobre etiología, fisiopatología, manifestaciones clínicas y diagnóstico del síndrome de Cushing. Se hizo uso de la técnica de encuesta empleándose un instrumento tipo cuestionario que se aplicó de manera

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virtual a través de Google Forms. Las respuestas fueron archivadas en un correo electrónico. Resultados: la mayor parte de los estudiantes correspondían a tercer año (45 %). El nivel de conocimiento sobre la etiología del síndrome de Cushing fue regular con un 41 %, mientras que sobre la fisiopatología, manifestaciones clínicas y diagnóstico fue adecuado con un 63 %, 46 % y 52 % respectivamente. Conclusiones: existieron dificultades en el conocimiento de la etiología del síndrome de Cushing, no siendo así en el caso de las manifestaciones clínicas y el diagnóstico. Sin embargo, la fisiopatología es el aspecto donde mayor conocimiento se constató.

Palabras clave: Conocimiento; Estudiantes de medicina; Síndrome de Cushing.

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