

Female Students with Increased Body Weight: The Presence of Manifestations of Hyperandrogenism and Their Menstrual Cycle Characteristics

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Received Date: October 05, 2024 | Accepted Date: November 14, 2024 | Published Date: November 28, 2024

Citation: Konstantin A. Bugaevsky, (2024), Female Students with Increased Body Weight: The Presence of Manifestations of Hyperandrogenism and Their Menstrual Cycle Characteristics, *International Journal of Clinical Reports and Studies*, 3(6); DOI:10.31579/2835-8295/083

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Abstract

The article presents the data of the conducted study on detection of signs of hyperandrogenism and individual disorders of the ovarian-menstrual cycle in female students of the special medical group with increased body weight. The analysis of the obtained results indicates various deviations from the endocrine and reproductive systems in 98.7% of the examined female students. It was established that 22 (57.9%) female students have various manifestations of hyperandrogenism with concomitant disorders of the ovarian-menstrual cycle, such as hypomenstrual syndrome, most often in the form of oligomenorrhea, which were detected in 37 (97.4%) female students.

Keywords: hyperandrogenism; menstrual irregularities; students; increased body weight; reproductive health; special medical group

Introduction

Ключевые слова: гиперандрогения, disorders of the menstrual cycle, students, increased mass of the body, reproductive health, special medical group the last decades are characterized deterioration somatic and reproductive conditions Health of the population Many countries, especially expressed changes in student youth. So one of them The main problem of any state Question Health and The physical potential of young people, especially Modern Student. It becomes a great pity habitual Trend к Increase contingent Special medical групп в ВУЗах , что testifies about the deterioration conditions Health and physical preparedness youth [6]. У девушек-студенток прожизиваться тренденция к гинекелической добаваеме, в структура комментарии одно из продукты место прострачный цикльного цикл [5,9,12,14]. In this connection, a complex study of the health of female students is of special importance, as this is a special social group with increased risk of functional disorders of the body. [6]. The syndrome of hyperandrogenism is a fairly extensive group of endocrine diseases that arise due to very diverse pathogenetic mechanisms, but are united by the principle of similar clinical symptoms due to the excess amount and/or quality (activity) of male sex hormones (androgens) in the female body. [3,10]. Частота гиперандрогенных состоянии в структура гинекелических доставых колеблется от 1,4 до 3% [3,10]. In the teenage period of life, increased hair growth in atypical places, so-called hypertrichosis, can be the only complaint in girls with an unchanged menstrual cycle and the absence of signs of somatic pathology. Вымеше с тем избыточный рост terminalnyh volos с направлением их по мужскому типу, т. е. Hirsutism is often found when examining girls with menstrual cycle disorders such as oligomenorrhea, amenorrhea, and uterine bleeding, in patients with hypothalamic syndrome during puberty, with thyroid dysfunction, obesity, diabetes, dysmenorrhea, anorexia nervosa [3,10]. In women of reproductive age, suffering from obesity, disorders of the

menstrual cycle are caused, mainly, by hyperandrogenism, formed in the conditions of disorders of carbohydrate and lipid metabolism, starting from the period of menarche, in prepuberty and puberty [1-5,9-14].

The purpose of the study was to determine the presence and expression of hyperandrogenism of different origins among students of a special medical group with menstrual cycle disorders and increased body mass. Задачами исследования было являть, в студенток в специальные медицинальной группы с проченной тебе масс, individual variants of the flow of the menstrual cycle and their possible disorders, as well as the amount and individual clinical manifestations of hyperandrogenism of ovarian and adrenal genes.

I-II courses with elevated body mass, aged 18-22, participated in the study. years (average) Age 19, 7 ± 2,16 years). In order to to rate state Menstrual function student, us проводилось definition Time Menarche and individual Features течения и становления их menstrualного Cycle. For the study, the author's questionnaire was specially developed, including questions related to the individual characteristics of the menstrual cycle and a special table, which includes a number of anthropometric indicators and the values of special indices, reflecting changes in the state of reproductive health of the studied students of the I-II courses of the Zaporizhzhya State Medical University, referred to According to the results of the medical examination to the special medical group . After Completion issledovaniya nami byly necessary расчёты, провенана their statistical Processing and analyzed received Results. Processing of the obtained material was carried out on a personal computer using the package of application programs Statistica 5.0. Results with $p < 0,05$ were considered statistically significant. Correlation of individual anthropometric indicators was estimated by us with the help of using a number of special indexes. Массо-ростовые разоломилисили с импользование ИМТ, indicators of Rohrer's index (IR) [6]. Such

anthropometrics were also conducted Dimension: Length Тела стоя, масса тела, ширина плеч, плече - тазового индекса (ПТИ) [6], индекса ожирения тела (ИОТ) по Бергману [15], представление строичу оволосяния в 11 области тела по шкале Феримана-Голлвея [3,8,10]. The morphotype of girls of adolescent and first reproductive age was determined by the method of clinical anthropometry [6]. Индекс массы тела (ИМТ) was determined by the formula: $\text{ИМТ} = \text{масса тела (кг)} / \text{рост}^2 (\text{м}^2)$. For normative indicators, the values of $\text{ИМТ} \geq 25 \text{ kg/m}^2$ – hypersthenic morphotype, $\text{ИМТ} 25,0-29,9 \text{ kg/m}^2$ – excess body mass (pre-obesity), $\text{ИМТ} 30,0 - 34,9 \text{ kg/m}^2$ – obesity I degree, the value of $\text{ИМТ} 35,0-39,9 \text{ kg/m}^2$ как ожирение II сдрение [4,7,11,13]. Rohrer's mass-growth index (IR), which determines body density, depends on linear dimensions and body mass, calculated by the formula: $W/H^3 \text{ kg/cm}^3$, where W – body mass (kg), H – body growth (m) [6].

Also in our study we used a new index, proposed in 2011 by American scientist Richard Bergman [15]. Its calculation is presented in the form of the following formula: $\text{ИОТ} = \text{обручность бёдер (см)} / \text{рост (м)} \times \sqrt{\text{рост (м)}} - 18$. According to его расчётам, the value of the index of obesity of the body (ИОТ) is considered normal within the range from 8 to 20. Показатель less than 8 - lack of mass, more than 20 - excess weight. If the value is greater than 25, it means obesity, depending on the values of the index [15].

The results of the conducted research show that the examined girls did not have significant differences in age, but they differed in length and body mass ($p < 0.05$). The following were obtained when analyzing the results Indicators: масса тела более 85- 90 кг have 38 (18,54%) students of special medical group I and II курсов.

When determining ИМТ values were established, что в всей просмотрной группе ($n=38$), the indicator was $28,78 \pm 1,59 \text{ kg/m}^2$ ($p < 0,01$). On the 1st course, average body mass index was $27,36 \pm 0,78 \text{ kg/m}^2$, $\text{ИМТ} - 28,56 \pm 1,81 \text{ kg/m}^2$, which corresponds to excess body mass. На II курсе эти прикрасоты были область: среднее обхождение массы тела – $100,58 \pm 3,73 \text{ kg}$, $\text{ИМТ} - 28,96 \pm 1,40 \text{ kg/m}^2$, which also corresponds to excess body mass. At the same time, in 3 (17.65%) students of the 1st year and 4 (19.05%) students in the 2nd year (18.42% of all students with overweight body mass), indicators of ИМТ were in the range of $30.0 - 34.9 \text{ kg/m}^2$, which corresponds to the 1st degree of obesity [1,2,4,11]. Значения м асо-ростового индекса Rohrer (IR) in the entire research group ($n=38$) was $19,2 \pm 1,08 \text{ kg/cm}^3$ ($p < 0,01$). У студенток I курса ИР was $18,97 \pm 1,37 \text{ kg/cm}^3$, у студенток II курса – $19,38 \pm 0,75 \text{ kg/cm}^3$, что выбератных перекрадах физичего развития [1,2,4,6,11].

При девушнии начания индекса ожирения тела (ИОТ) по методике Р. Bergman [15], we have obtained the following results: У всех студенток 2 - х курсов ИОТ was $28,92 \pm 3,9$ ($p < 0,01$), which indicates an increase in body mass, corresponding to obesity. У студенток I курса измените этого индекса corresponds to $30,95 \pm 4,73$, а у студенток II курса изменений индекса corresponded to $27,28 \pm 1,98$, что также что также обизирению [1,2,4,11]. Indicators of the degree of hair loss in 11 areas of the body according to the scale of Ferriman-Hollvey in students with phenomena of hyperandrogenism and increased body mass were as follows: from 8 to 12 points - in 29 (76.32%) students - hair loss, borderline between normal and excessive; 12-18 points – in 9 (23.68%) students, что было ценено нами, как гирсутизм [3,8,10].

When assessing the time of onset of menarche, it was found that $13,7 \pm 0,16$ years old, which corresponds to average statistical indicators [5,9,14]. Menarche age was $13,6 \pm 0,7$ years for students of the 1st course, and $13,8 \pm 0,6$ years for students of the II course. However, upon more detailed consideration of the obtained results, it was established that the beginning of the menstrual cycle in 4 students (10.53%) occurred at the age of 11-12 years, and in 32 girls (84.21%) - at the age of 13-14 years, with 14 по 15 лет - у 2 students (5.26%). У 97,4% of students I и II курсов had different courses species violations menstrual cycle У 12 (31,58%) из них была fixed secondary Amenorrhea, with absence Menstrual bleeding in time more than 6 месяцев [5,8,9,14]. 26 (68,42%) of the students were diagnosed with hypomenstrual syndrome, with manifestations of hypo-oligo- and

proiomenorrhea, combined with clinical manifestations of algodysmenorrhea [5,8,9,14].

The average duration of the menstrual cycle in students is within the physiological norm of 21-35 days, namely – $16,6 \pm 1,36$ days [5,8,9,14]. The number of girls, with the duration of the menstrual cycle less than 3 days (oligomenorrhea), on the I course was 11 students, or 64,71%, on the II course – 16 students, or 76,2%. When determining the time of establishment of the stability of the course of the ovarian-menstrual cycle in the whole group is 1.4 ± 0.47 years, which corresponds to acceptable physiological characteristics [5,8,9].

Of the total number of students, 35 of them, or 92.11%, are marked as expressed Premenstrual Syndrome. Only 3 Students, or 7,89% noted it Complete absence. It was установно, что duration Menstrual bleeding in the whole To the group is $2,4 \pm 0,4$ дня, что просмотров manifestation Oligomenorei [5,8,9,14]. Our data confirm the opinion of other researchers, who indicate that in adolescence and in the first mature (reproductive) age, in 65-70% of patients with excess body weight, in the structure of menstrual cycle disorders, such a menstrual cycle disorder as oligomenorrhea prevails [5,8,9,14].

On results накетерирования и осмотра установно, что Manifestations гиперандрогении (рост темных, жестких волос на нехарактерных for women участках, акне, себорея) очень у 22 student (57,9%). According to the anamnesis and questionnaire data, 12 (31.58%) female students, during 4-6 years, have been on the dispensary account with an endocrinologist and gynecologist with Stein-Leventhal syndrome, 19 (50%) female students have impaired glucose tolerance and the phenomenon of prediabetes, 4 (10.53%) are on the dispensary account with an endocrinologist doctor with diabetes mellitus type I, and 3 (7,9%) are observed at the gynecologist for hyperandrogenism of the adrenal gland.

Thus, the above results, obtained as a result of the conducted research, allow the following conclusions to be drawn:

1. 37 (97.4%) of the examined female students of the special medical group, with increased body mass, have a complex combined gynecological and endocrinological pathology with changes in metabolism, hormonal changes in the type of hyperandrogenism of ovarian and adrenal genesis and various disorders of the ovarian-menstrual cycle in the type Hypomenstrual syndrome.
2. Disorders of the menstrual cycle, which occurred in puberty in female students with obesity, retain their structure and hormonal characteristics in the first reproductive age, while disorders of fat metabolism and the phenomenon of hyperandrogenism can worsen with age, if there is no adequate treatment
3. Manifestations гиперандрогении были мечераны у 22 (57,9%) students of the special medical group with increased body mass, which requires dispensary observation, extended diagnostics and etio-pathogenetic treatment both at the endocrinologist and at the gynecologist-reproducer.

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