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A comparative analysis of etiopathogenesis of polycystic ovarian disease among adolescent girls

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Abstract

Poly cystic ovarian disease (PCOD) is a common multifaceted disorder found among females of the reproductive age presenting major clinical condition of oligo menorrhoea, hirsutism and infertility. Socioeconomic studies from India have observed PCOD as a Lifestyle disorder, highly prevalent among adolescent girls. PCOD is currently known to be genetically complex endocrine disorder of uncertain etiology with complicated pathophysiology.

Unani concept: Marz-ikyaa-khusia tu reham is the Unani term called for PCOD, is in fact an Arabic translation of PCOD. This disease has been described by Unani physician under the headings of amenorrhoea, phlegmatic disease and liver disorder.

Unani concept of PCOD is mainly based on the dominance of khilte Balgham (Phlegm). It has been mentioned in classical books that Sue mizaj barid means abnormal cold temperament of the liver may leads to abnormal production of balgham (Phlegm). One of the abnormal forms of phlegm is balgham mai which is thinner and Accumulate in the sacs to form cyst. other predominant symptoms of PCOD are oligo menorrhoea, amenorrhoea and obesity has been attributed to rise of phlegm, hence claimed that PCOD arises due to predominance of phlegm in the body which leads to cyst formation in the ovaries, obesity and amenorrhoea.. The Unani physician consider that early 20 years of life are the period of childhood which is predominated by phlegm. Hence phlegmatic disorder are likely to occur at adolescent stage. This probably may explain the role of phlegm a contributing factor for the onset of this disease during this age group: In unani system of medicine the disease has not been described under the term PCOD, as disease has been categorised recently, a century before. The description of the disease has been described by unani physician under the headings of ehtebaas e tams or UQR.

Ibne sena and majusi stated the causes of ehtebaas e tams are khilte balgham, and sue mizaj barid of reham and samane mufarrit (Obesity). Again khilte balgham is one of the cause of obesity. Due to obesity narrowing of lumen of blood vessels develop s and reduces blood circulation and sue mizaj barid causes increased in the viscosity of humours

Study objectives: The aim of the study to explore the prevalence of pcod based on unani system of medicine among adolescent girls, along with the comparative analysis of etiopathogenesis of this disease

Observation: We noticed that there is a strong association between the predominance of khilte balgham in the body and poly cystic ovarian disease (Pcod). Among 525 adolescents girls 55 girls were obese and having irregular menstrual cycles. Along with that, they have been suffering with frequent episodes of cold n cough. Since their childhood

Result: The prevalence of pcod probably in this study is 10.4% based on the predominance of khilte balgham (Phlegm) with irregular cycle s.

Conclusion: Girls who were having menstrual irregularity and signs n symptoms of sue mizaj barid (Cold temperament) probably would have cysts in their ovaries. They are advised further for investigation.

Keywords: PCOD, marz e ikyaas e khusiya turreham, phlegmatic disease

Introduction

Polycystic ovarian disease is the most common endocrinal disorder among women. There is evidence that it is largely a genetic disease. It is generally a metabolic dysfunction, since it is reversible. The condition was first described in 1935 by American gynecologists Irving F. Stein, Sr. and Michael L. Leventhal, from whom it's original name of Stein-Leventhal syndrome is taken. A consensus workshop sponsored by the NIH/NICHD suggested that a person has PCOS if she has all of the following: 1. Oligoovulation 2. Signs of androgen excess (Clinical or biochemical) 3. Exclusion of other

Disorders that can result in menstrual irregularity and hyperandrogenism.

Rotterdam In 2003 a consensus workshop sponsored by ESHRE/ASR Min Rotterdam indicated PCOD to be present if any 2 out of 3 criteria are met 1.oligoovulationand/or anovulation 2.excess androgen activity 3.polycystic ovaries. PCOD produces symptoms in approximately 5% to 10% of women of reproductive age (approximately 12 to 45 years old). It is thought to be one of the leading causes of female Subfertility and the most frequent endocrine problem in women of reproductive age.

Epidemiology

The prevalence of PCOS depends on the choice of diagnostic criteria. The World Health Organization estimates that it affects 116million women worldwide as of 2010. One community-based prevalence study using the Rotterdam criteria found that about 18% of women had PCOD, and that 70% of them were previously undiagnosed. Polycystic ovarian disease (PCOD) is the most common endocrine abnormality of women of reproductive age, and is the commonest cause of infertility due to anovulation. PCOD affects 5-10% of reproductive age women rising till 15% in women with infertility. This disease has been described by eminent Unani Physicians in the classical literary books under the headings of amenorrhoea, obesity, phlegmatic disease and liver disorders. Unani concept of PCOD is mainly based on the dominance of khilte balgham (phlegm). The predominant symptoms of PCOD like amenorrhoea, oligomenorrhea and obesity have been attributed to arise of phlegm. So it is claimed that PCOD arises due to predominance of phlegm in the body which leads to cyst formation in the ovaries, obesity and amenorrhoea. This disease is complex, as it further gives rise to complications like infertility, cardiovascular ailments, type-2 diabetes mellitus, metabolic syndrome, carcinoma of breast and endometrium. Such a complicated disease has no satisfactory treatment till now and most often patient gets only symptomatic treatment with hormones and insulin sensitizer and becomes drug dependent in the long term. Unani physicians have recommended regular induction of menstruation as one of treatment modality applied for women who has developed masculine features suggestive of PCOD. They have given a line of management based on correction of temperament, menstrual regulation by use of emmenagogue drugs and local application of herbs to reduce the severity of hair growth, acne and hyper pigmentation due to pcod.

The modern civilization has given rise to various life style diseases. The sedentary life style, craving towards the junk food, emotional and behavioural disturbances (like highly competitive attitude and social insecurities); all these factors disturb the HPO Axis (hypo thalamus- pituitary-ovarian axis) and perpetuate life style diseases like PCOD. This disease is considered as the commonest endocrine abnormality in women of reproductive age affecting 5-10% of the reproductive women rising till 15% in women with infertility and it accounts for about 75% of an ovulatory infertility. It results in production of high amounts of androgen particularly testosterone and chronic anovulation. Hyperandrogenism manifest clinically as hirsutism, acne, alopecia and virilisation.

PCOD accounts for most cases of oligomenorrhea and about a third of those of amenorrhoea. A more recent joint

consensus statement between the European Society for Human Reproduction and Embryology and the American Society for Reproductive Medicine (ESHRE/ASRM) has revised the criteria for diagnosis of PCOD to include two from three of the following criteria:

1. Oligomenorrhea/anovulation;
2. Clinical or biochemical evidence of hyperandrogenism;
3. Polycystic ovaries, with the exclusion of other etiologies. The hallmark clinical features of PCOD are menstrual irregularities (Amenorrhoea, oligomenorrhea, or other signs of irregular uterine bleeding), signs of androgen excess, and obesity

Unani concept

The Unani term coined for PCOD is Marz Akyas Khusyur Rehmi; is in fact an Arabic translation of PCOD. This disease has been described by Unani Physicians under the headings of amenorrhoea, obesity, phlegmatic disease and liver disorders. Unani concept of PCOD is mainly based on the dominance of khilte balgham (Phlegm). It has been mentioned in classical books that sue mizaj barid (Abnormal cold temperament) of the liver may leads to abnormal production of phlegm, as liver is unable to convert chyme into blood, instead it converts it into phlegmatic blood or tenacious phlegm. One of the abnormal forms of phlegm is balgham mayi, which is thinner in consistency and can accumulate in sacs to form cysts. Also the other predominant symptoms of PCOD like amenorrhoea, oligomenorrhea and obesity have been attributed to rise of phlegm hence, it is claimed that PCOD arises due to predominance of phlegm in the body which leads to cyst formation in ovaries, obesity and amenorrhoea. The Unani Physicians consider that the early twenty years of life are the period of childhood which is predominated by phlegm; hence the phlegmatic disorders are more likely to occur at this stage. This probably may explain the role of phlegm as a contributing factor for the onset of this disease during this age group.

Diagnosis by clinical presentation

Rhazes recorded combination of signs conjoined with menstrual irregularities (Oligomenorrhea, amenorrhoea and DUB) including hirsutism, obesity, acne, hoarseness of voice and infertility, which are suggestive of polycystic ovarian disease and hyperandrogenism. Hippocrates (460-370 BC) first documented the affiliation of excess facial and body hair (Hirsutism) in females with prolonged amenorrhoea, obesity and infertility; similar observations were reported by Galen (130-200 AD). Hirsutism is mentioned in classical Unani literature as a complication of prolonged amenorrhoea associated with other masculine features like hoarseness of voice, male body contour, acne etc. The pathophysiology of hirsutism was explained by Ibn Sina and Ismail Jurjani. Alteration of normal temperament of women was considered as central dogma for hirsutism. It was said that persistence of amenorrhoea for a long duration causes alterations in internal environment of women's body and status of equilibrium is disturbed, leading to formation of some unwanted material which is being excreted through skin pores in the form of busoore labnia (Acne) and also participate in the growth of thick hair over the body.

As the normal temperament of women are cold and moist and with prolonged amenorrhoea, it gets transformed towards that of men (Hot and dry). This is mainly because

of the ehteraq (Detonation) of normal phlegm (Cold and moist) to black bile (Hot and dry). The effect of this souda (Black bile) on skin leads to hirsutism and hyper pigmentation (Acanthosis nigricans).

It was observed by Ibn Sina, Ismail Jurjani and Al Razi that development of masculine features is more common in obese women with robust body and prominent blood vessels, as these women have almost similar temperament as that of men. PCOD may complicate further leading to infertility, insulin resistance, metabolic syndrome etc. Such a complicated disease has no satisfactory treatment till now and most often patient gets only symptomatic treatment with hormones and insulin sensitizers but becomes drug dependent in long term treatment.

Material and Method

A community based screening was undertaken in a girls college, Mumbai. Survey comprises of two phases. In the first phase of study, total of 525 adolescents girls were taken up for screening with the help of questionnaire, about their age of menarche, current menstrual cyclicity

Like oligomenorrhoe, hypomenorrhoe, Secondary amenorrhoea and signs and symptoms of dominance of phlegm in the body like obesity and frequency of cold n cough since childhood.

Observation

Marz e ikyaase khusiyaturrehm (Pcod) currently considered a lifestyle disorder affecting 2-26% in their reproductive age group. A study conducted on 525 girls in the age group of 15- 25 years from girls college of Mumbai, reported prevalence of 10.5% in Indian adolescents. Among 275 students, of 15-17 years of age group. 28 of them were with symptoms of pcod. Among 194 students of 17-19 years of age group, 36 of them were with symptoms of pcod. About 56 girls of 19- 21yrs of age group 12 were with symptoms of pcod. Totally 76 students with different age group were found to be having irregular periods. Among all 525 students 55 students were with symptoms of pcod like obesity and menstrual irregularity, associated with rise of phlegm in their bodies.

Table 1: Number of students with menstrual irregularity.

S. No	Age	Total No. of Students	Total No. of student with menstrual irregularity	Percentage of students with menstrual irregularity
1	15-17 years	275	28	10.8 %
2	17-19 years	194	36	18.5 %
3	19-21 years	56	12	21.4 %
Total		525	76	14.4 %.

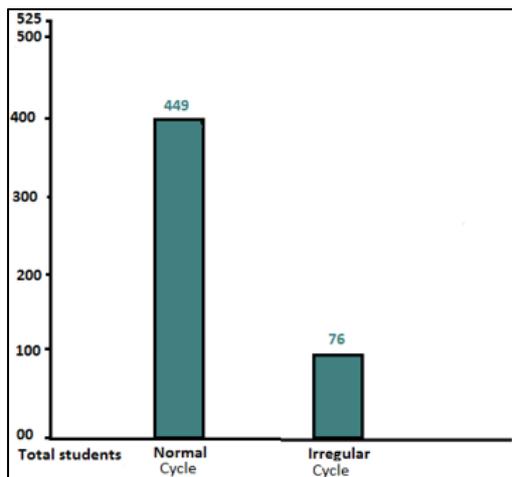


Fig 1: Total numbers of students having irregular periods

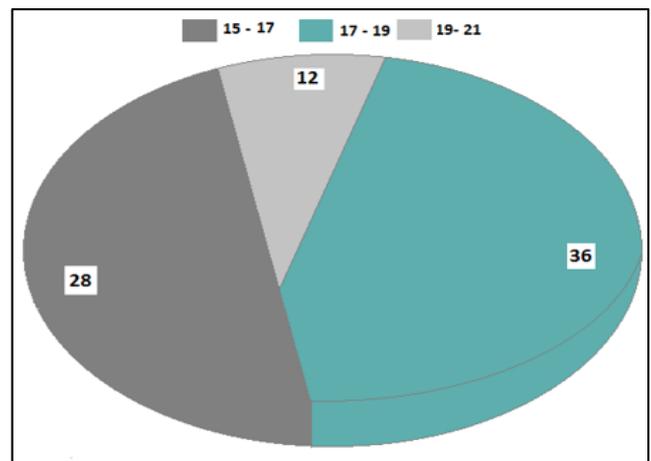


Fig 2: Distribution of students with irregular according to age group

Table 2: Distribution of student with obesity

S. No	Age	Mean Weight	No. of student with obesity	Percentage of students having obesity
1.	15 -17	52.32	22	8 %
2.	17 - 19	56.37	20	10.3 %
3.	19 - 21	58.36	23	23.2 %
		Total No. of obese students	65	12.3 %

Table 3: Numbers of students having obesity and irregular periods.

S. No	Age	No. of students surveyed	No. of students having obesity and irregular periods	Percentage of students with obesity and menstrual irregularity
1.	15-17	275	13	11.6 %
2.	17-19	194	28	14.4 %
3.	19-21	56	14	25 %
Total		525	55	10.4 %

Table 4: Students evaluated with different other pathology.

S. No	Diseases	No. of students	Total No. of students
1.	Tuberculosis	8	525
2.	Multiple myelomas	1	525
3.	Thalassaemia	3	525

Result

The prevalence of PCOD probably in this study is 10.4% based on the predominance of khilte balgham associated with obesity and irregular cycles. The observed prevalence in the present study is commensurate with the reported prevalence in the reference studies. According to a prospective study conducted, on 460 girls aged 15-18 years in a residential college in Andhra Pradesh, South India, the prevalence of PCOS was found to be 9.13% in adolescents. Similarly, another study conducted by Williamson reported that PCOS women of different ethnicity presented with different clinical manifestation. They reported the prevalence between 2.2-26%.

Conclusion

Girls who were having menstrual irregularity and signs n symptoms of sue mizaj Barid (Cold temperament) probably would have cysts in their ovaries. They are advised further for investigation.

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