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Original Research Article

A clinico-social study of polycystic ovarian syndrome in women of reproductive age group at tertiary care centre

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ABSTRACT

Background: Polycystic ovarian syndrome is considered to be a multifaceted disease with a spectrum of manifestation affecting not only women of childbearing age group but also adolescent and post-menopausal women. Most prevalence studies in India prevalence of PCOS as 3.7 %-22.5%. Rotterdam consensus conferences, the revised diagnostics criteria includes any two of the following, oligomenorrhoea/anovulation, clinical and or biochemical signs of hyperandrogenism, polycystic ovaries on the USG and exclusion of other aetiologies such as congenital adrenal hyperplasia, androgen secreting tumor and Cushing syndrome.
Methods: Study was conducted in women of reproductive age group with PCOS attending gynaecological OPD at RNT medical college Udaipur. It is prospective comparative study. Total 290 women included. Study was done to know the association of polycystic ovarian syndrome with the socio-demographic profile of the patient.
Results: Mean age of the study participants was 22.74±3.81 years. About 30.7% are having hirsutism, 66.9% overweight, 21.7% acne, 17.2% infertility, 5.9% amenorrhea, 82.4% oligomenorrhea and 21.4% obesity. 21.7% have acne among the study participants. Around 30.7% had hirsutism.
Conclusions: PCOS was shown to have a very high prevalence in women between the ages of 21 and 30, with a mean age of 23 years. These women came from a middle socioeconomic level and were living in urban regions with a majority of them being students and housewives who had sedentary lifestyle. It was observed that the most frequent clinical symptoms of PCOS in women were oligomenorrhea, weight gain, infertility, hirsutism, and acne.

Keywords: Acne, Hirsutism, Infertility, Oligomenorrhoea, Polycystic ovarian syndrome

INTRODUCTION

Polycystic ovarian syndrome is considered to be a multifaceted disease with a spectrum of manifestation affecting not only women of childbearing age group but also adolescent and post-menopausal women[1] PCOS, by the nature of disease adversely influences the fertility and reproductive health of the affected women,[2] moreover with its association with the other lifestyle disease; it is also the cause of significant cardiovascular and metabolic morbidity.[3] Most prevalence studies in India prevalence of PCOS as 3.7 %-22.5%.[4] According to the 2003, Rotterdam Consensus conferences, the revised diagnostics criteria include any two of the following 1) Oligomenorrhoea/anovulation; 2) Clinical and or biochemical signs of hyperandrogenism; 3) Polycystic ovaries on the USG (more or equal the 12 follicles measuring 2-9mm in diameter and or increased volume of ovary, more or equal then 10ml); 4) Exclusion of other aetiologies such as congenital adrenal hyperplasia, androgen secreting tumor and cushing syndrome.[5]

Diagnostic workup of polycystic ovarian syndrome: After clinical diagnosis of PCOS, further radiological imaging and biochemical evaluation should be done to confirm the diagnosis.

Table 1: Common clinical findings associated with PCOS.[6]

Signs of androgen excess	Evidences of menstrual /reproductive dysfunction	Evidences of metabolic dysfunction
Hirsutism **Acne** **Male pattern hair loss**	Amenorrhoea Oligomenorrhoea (8 or less cycles in the year) Dysfunctional uterine bleeding Anovulation or oligoovulation Ovarian enlargement Endometrial hyperplasia Infertility	Obesity Acanthosis nigricans Elevated blood glucose Elevated insulin levels hypercholesterolemia

Treatment modalities of polycystic ovarian syndrome: Ttreatments depends on patient goals ranging from lifestyle modification to drug therapy. It includes: 1) Dietary and lifestyle modification; 2) Medical management with oral contraceptive pills, metformin, spironolactone; 3) Ovulation induction with clomiphene citrate; 4) Others like laparoscopic electrocautery and ovarian wedge resection (not done now a days).

Clinical clarification: Polycystic ovary syndrome is a heterogeneous endocrine disorder presenting in reproductive-aged women. Diagnostic criteria require at least 2 of the following abnormalities: hyperandrogenism (clinical and/or biochemical), ovulatory dysfunction, or polycystic ovarian morphologic features.[10] People with polycystic ovary syndrome suffer reproductive and metabolic abnormalities, and they are at risk for infertility, impaired glucose tolerance, type 2 diabetes mellitus, dyslipidaemia, endometrial cancer, and cardiovascular disease. Condition is estimated to occur in about 5% to 10% of reproductive-aged women.[1] Menstrual dysfunction occurs in 75% to 85% of patients.[7] Oligomenorrhea or amenorrhea (infrequent or absent menstrual bleeding) is the most common pattern, with most intervals longer than 35 days.[3]

Polymenorrhea (less than 21-day intervals) is relatively rare.[3] Onset is usually in adolescence; may start at menarche or shortly thereafter.[7] In some adolescents, condition is noted by absence of established regular menses.[3] Ovulatory dysfunction can be present sub clinically with no obvious disruption in regularity of vaginal bleeding.[7] 15% to 40% of women with hyperandrogenism and regular menses have ovulatory dysfunction.[3] History of infertility: Common presenting issue; nearly 70% of patients report infertility.[9] Hair and skin concerns: Excessive terminal body hair growth is a common concern, hirsutism develops gradually and worsens with weight gain, acne can occur with hirsutism; overall, acne is less common as a presenting complaint (15%-30% of patients).[10] Hair loss, when it occurs, is most pronounced over vertex or crown and spares frontal hairline.[1] Hirsutism (about 75% of patients; more severe in abdominally obese patients).[11] Excessive terminal hair that appears in a male pattern (example- chest, midline lower abdomen, above lip). Terminal hairs grow more than 5 mm in length, are pigmented, and have a central core of compacted cells, which gives a denser colour and coarser feel and shape.[12] Ferriman-Gallwey score of 8 or higher is generally considered representative of hirsutism.[13] Acne (60% of patients, at some point).[14] Acanthosis nigricans (37% of patients).[14-15] Androgenic alopecia (about 5% of patients).[6] Typically affects vertex or crown in diffuse pattern. Overweight or obesity (about 75% of patients).[16] Central distribution of adiposity also may be present in those with BMI in reference range:[17] Overweight: BMI of 25 kg/m² or higher, Obese: BMI of 28 kg/m² or higher, Waist circumference greater than 88 cm is considered abdominal obesity in women, waist to hip ratio greater than 0.8 is considered unhealthy. PCOS is Associated with several cardiometabolic diseases or conditions that should be assessed and monitored: Obesity (about 75% of patients).[16] Type 2 diabetes mellitus (about 10% of patients).[18] Dyslipidaemia (about 70% of patients).[19] Obstructive sleep apnoea.[20] Non-alcoholic steatohepatitis, subclinical vascular disease.

Primary diagnostic tools: Consider this diagnosis in any reproductive-aged woman with clinical signs of hyperandrogenaemia (most commonly, hirsutism) or irregular menstrual cycles. Diagnostic criteria (Rotterdam criteria).[22] In adults require that at least 2 of the following 3 conditions be met 1) Clinical or biochemical hyperandrogenism: assess degree of hirsutism using Ferriman-Gallwey score (8 or higher is generally considered abnormal). 2) Oligo-ovulation or anovulation 3) Ovarian size or morphology on pelvic ultrasonography: Polycystic ovary morphology is designated by a follicle number per ovary of 20 or more or an ovarian volume of 10 mL or more on either ovary, ensuring that no corpora lutea, cysts, or dominant follicles are present.[8,13,23]

Treatment involves addressing various disease components, including overweight and obesity, metabolic abnormalities, anovulation, acne, hirsutism, endometrial protection, infertility, and cardiovascular risk factors.[24] For most components of disease, primary treatment is weight loss through lifestyle modification. Treatment options for anovulation: Lifestyle modifications to achieve weight loss (at least 5% of body weight) can increase ovulation and pregnancy rates in some women.[25] Hormonal contraceptives are first line pharmacologic therapy to treat

menstrual irregularity for patients who are not trying to become pregnant. Hormonal contraceptives also ameliorate features of hyperandrogenism (hirsutism and acne) and provide endometrial protection through withdrawal bleeding.[26] Consider metformin as second line therapy in patients who cannot take or do not tolerate hormonal contraceptives. Treatment options to address obesity or overweight and to improve metabolic health: First line therapy is lifestyle modification, which includes dietary changes and exercise, to achieve weight loss. Metformin may be added to target metabolic abnormalities (e.g. impaired glucose tolerance, diabetes).[27] Treatment options for acne and hirsutism: base treatment on patient's degree of distress caused by hirsutism, rather than clinician's quantitative or qualitative assessments. Hormonal contraceptives are first line pharmacologic therapy.[26] If results of hormonal contraceptives are suboptimal, can add antiandrogen drugs (example-spironolactone) after 6 months, preferably in combination with an oral contraceptive (or substituted).[28] Additional useful pharmacologic therapies for symptoms related to hyperandrogenism include: antibiotics, topical retinoids, or isotretinoin for acne, minoxidil for androgenic alopecia, eflornithine for hirsutism, nonpharmacologic cosmetic therapies for hirsutism include shaving, depilating, hair bleaching, electrolysis, and laser hair removal.[12,28] Treatment options for infertility.[29] Lifestyle modifications for weight loss are recommended in patients who are overweight or obese.[30] Weight reduction of 5% to 10% in total body weight can increase pregnancy rate and decrease requirements for ovulation-induction agents.[31-32] Both anti-obesity medications and bariatric surgery promote weight loss, but their use is discouraged before infertility treatment owing to safety concerns and mixed pregnancy outcomes.[29]

Pharmacotherapy options include clomiphene, aromatase inhibitors, gonadotropins, and metformin. First line pharmacologic therapy for infertility is ovulation induction using either letrozole or clomiphene.[8] Letrozole is superior to clomiphene for achieving pregnancy and live births. Patients with polycystic ovary syndrome are about 50% more likely to have a live birth with letrozole compared with clomiphene.[29,33] Letrozole may be preferred in overweight or obese patients. Clomiphene is an alternative first line agent for ovulation induction owing to more safety data.[33] Second line pharmacologic option for infertility is usually ovarian stimulation using low-dose urinary or recombinant gonadotropins.[34]

Aim of study was to know the association of polycystic ovarian syndrome with the socio-demographic profile of the patient.

METHODS

Study setting

The present study was conducted in women of reproductive age group with polycystic ovarian syndrome attending gynaecological OPD at RNT medical college Udaipur. This was an observational study conducted from January 2022 to July 2022.

Inclusion criteria

Reproductive age group women (15-45) having clinical symptoms of polycystic ovarian syndrome, participants had to be willing after informed consent in accordance with international and national ethics regulations were included.

Exclusion criteria

Age less than 15 years and more than 45 years, disease presenting with PCOS like feature-hypothyroidism, hyper prolactinoma, ovarian tumor, adrenal tumor and cushing syndrome were excluded from study.

Sample size

According to shinde et al, the prevalence of PCOS was 21 percent.[39] Based on the prevalence and taking absolute error 5% at 95% confidence interval, the sample size was 255. Additional 20% of loss to follow up was added, so the sample size was- n = 255+255×20% =302~ 310

Methodology

All the women of reproductive age group attending gynaecology OPD and having clinical symptoms of PCOS were undergone further evaluation for the confirmation of polycystic ovarian syndrome. After confirmation baseline data was collected with the help of a questionnaire.

Statistical analysis

Data are presented as mean, standard deviation, and descriptive statistics were used for the data analysis.

RESULTS

Around 28.3% are in the age group of 16-20 years followed by 70.0% in 21-30 years and 1.7% in 31-40 years. Mean age of the study participants was 22.74±3.81 years (Figure 1).

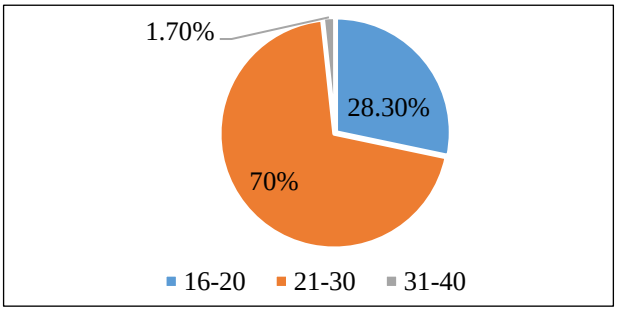

Figure 1: Distribution of age among the study participants (N=290).

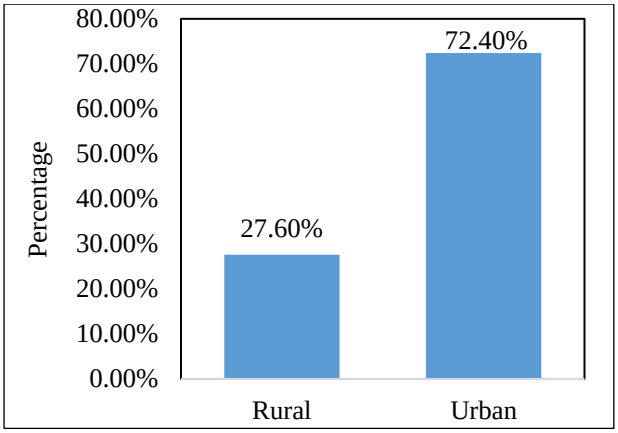

Figure 2: Distribution of residence among the study participants (N=290).

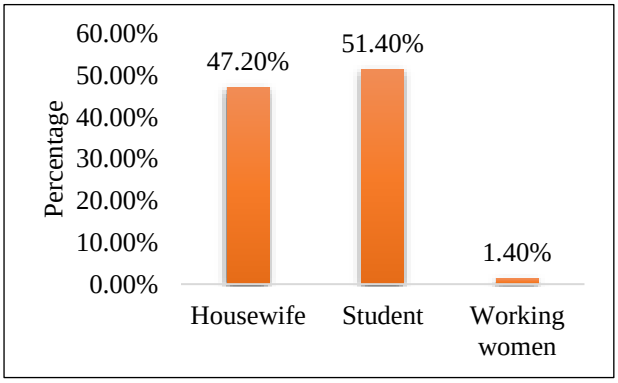

Figure 3: Distribution of occupation among the study participants (N=290).

Around 27.6% are from rural area and 72.4% from urban area (Figure 2).

Around 47.2% are housewives, 51.4% are students and 1.4% are business women (Figure 3).

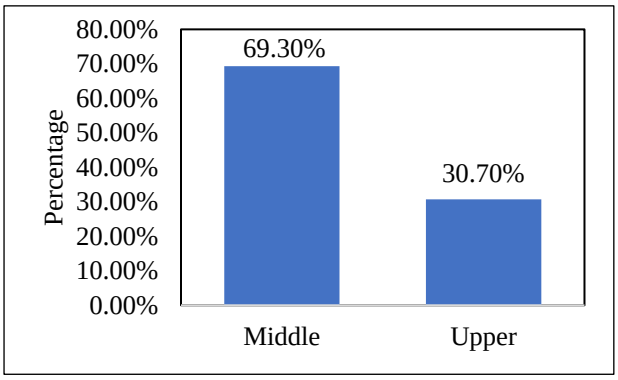

Figure 4: Distribution of socioeconomic status, marital status, family history, obstetric history and lifestyle among the study participants (N=290).

Around 69.3% are from middle socioeconomic status and 30.7% from upper socioeconomic status. Distribution of marital status among the study participants (N=290): Around 49.7% are married and 50.3% unmarried. Distribution of family history among the study participants (N=290): Around 36.6% had family history of PCOS. Distribution of OH among the study participants (N=290): Majority of patients were nulliparous (Figure 4). About 30.7% are having hirsutism, 66.9% overweight, 21.7% acne, 17.2% infertility, 5.9% amenorrhea, 82.4% oligomenorrhea and 21.4% obesity (Figure 5).

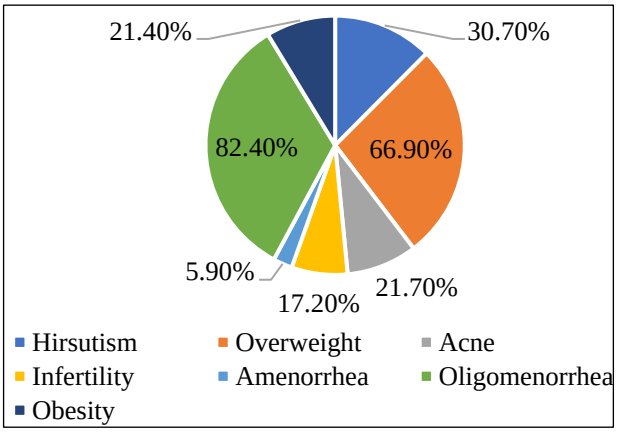

Figure 5: Distribution of chief complaints among the study participants (N=290).

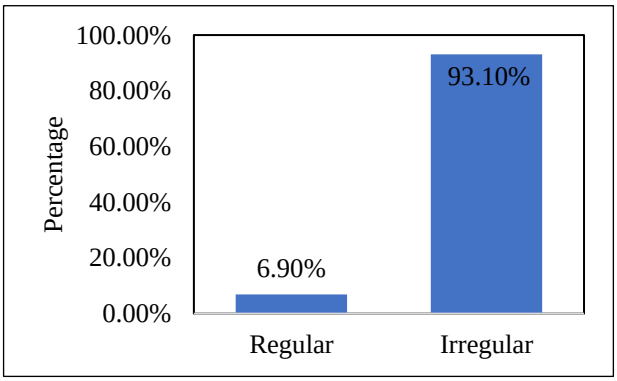

Figure 6: Distribution of menstrual pattern among the study participants (N=290).

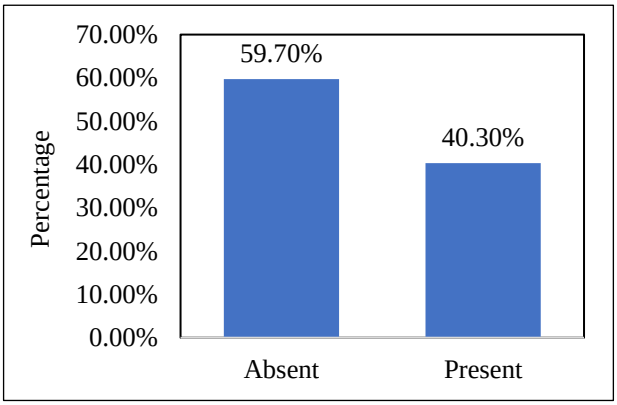

Figure 7: Distribution of acanthosis Nigricans among the study participants (N=290).

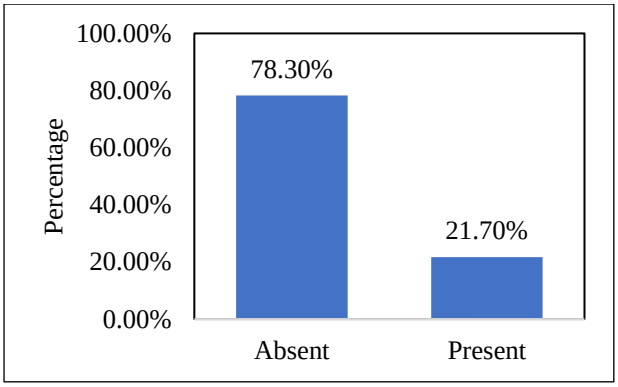

Figure 8: Distribution of acne among the study participants (N=290).

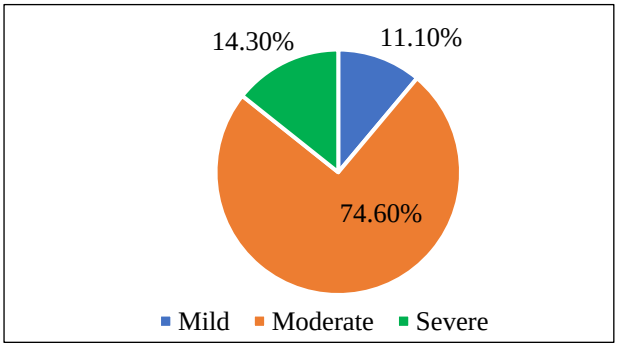

Figure 9: Distribution of acne grading among the study participants (n=63).

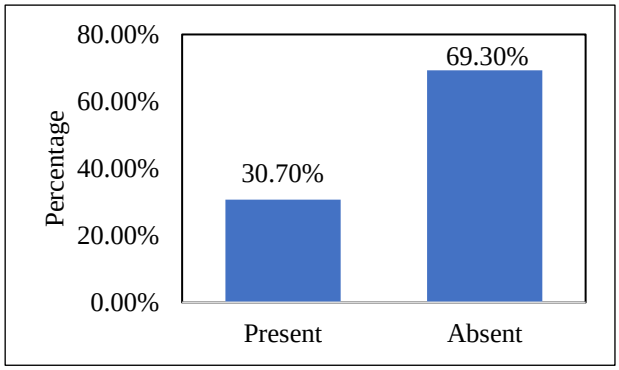

Figure 10: Distribution of hirsutism among the study participants (n=290).

Majority of patients (93.1%) have irregular menstrual pattern (Figure 6). Around 59.7% have acanthosis nigricans (Figure 7). Around 21.7% have acne among the study participants (Figure 8).

Around 11.1% have mild acne grading, 74.6% have moderate acne grading and 14.3% had severe acne grading (Figure 9). Around 30.7% had hirsutism (Figure 10).

DISCUSSION

The present study was conducted in women of reproductive age group with polycystic ovarian syndrome attending gynaecological OPD at RNT medical college Udaipur. The socio-demographic profile of the patient with polycystic ovarian syndrome were assessed. Patients included in the study were in the age group ranging from 15-45 years. In our study around 28.3% are in the age group of 16-20 years followed by 70.0% in 21-30 years and 1.7% in 31-40 years. The youngest age was 16 years and oldest was 32 years. Mean age of the study participants was 22.74±3.81 years. In a study by Sonak et al, the overall mean age of patients was 19.14 years, ranged from 15 to 24 years.[36]

Area of residence: In our study around 27.6% are from rural area and 72.4% from urban area. The possible reason may be urban population does have sedentary life style and more tendency of obesity. In a study by Sonak et al, 34.88% are from rural areas and 65.12% re from urban areas.[36] Employment status: In our study around 47.2% are housewives, 51.4% are students and 1.4% are business women. This may be due to housewives and students have sedentary life style.In a study by Sonak et al, 4.65% have studied till middle school, 15.12% studied till high school, 29.07% have studied till SSC, 23.26% have studied till HSSC and graduates studied till 7.91%.[36] Socioeconomic status: In our study around 69.3% are from middle socioeconomic status and 30.7% from upper socioeconomic status. Because present study was a hospital based study and being a government setup and city surroundings being rural population, majority of study participants were from rural population. In a study by Sonak et al, 15.12% are from lower class, 11.63% from lower middle class, 13.95% from middle class, 23.26% from upper middle class and 36.05% from upper class.[36] Symptoms: In our study about 82.4% oligomenorrhea, 66.9% overweight, 30.7% are having hirsutism, 21.7% acne, 21.4% obesity, 17.2% infertility, 5.9% amenorrhea, and round 11.1% have mild acne grading, 74.6% have moderate acne grading and 14.3% had severe acne grading. Feature of insulin resistance like acanthosis nigricans was present in 59.7%. Oligomenorrhea and overweight was major complaints for seeking help in hospital. In Sonak et al, 42 (48.84%) subjects had hirsutism, of them 32 (37.21%) subjects had hirsutism score between 9 to 15 whereas 10 (11.63%) subjects had hirsutism score >15 while 44 (51.16%) subjects had normal (≤8) hirsutism scores with a p=0.779 which was statistically insignificant.[36]

Family history of PCOS: In our study around 36.6% had family history of PCOS and metabolic illness like DM and HTN. In Sonak et al, the 28 (32.5%) subjects had a family history of DM and HTN, 39 (45.35%) subjects had abnormal hair growth patterns.[36] Life style: In our study about 6.2% of the participants have active lifestyle and 93.8% have sedentary life style. In Sonak et al, majority of subjects (94%) had never done any exercise activity.[36] Menstrual pattern: About 93.1% have irregular menstrual pattern. In Sonak et al, dysmenorrhea (37.21%) was the most common presenting illness followed by amenorrhea (30.23%).[36]

CONCLUSION

PCOS was shown to have a very high prevalence in women between the ages of 21 and 30, with a mean age of 23 years. These women came from a middle socioeconomic level and were living in urban regions with a majority of them being students and housewives who had sedentary lifestyle. It was observed that the most frequent clinical symptoms of PCOS in women were oligomenorrhea, weight gain, infertility, hirsutism, and acne.

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Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

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