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Gaps in knowledge among physicians regarding diagnostic criteria and management of polycystic ovary syndrome

Anuja Dokras, M.D., Ph.D.,[a] Shailly Saini, M.D.,[a] Melanie Gibson-Helm, Ph.D.,[b] Jay Schulkin, Ph.D.,[c] Laura Cooney, M.D.,[a] and Helena Teede, Ph.D.[b]

[a] Department of Obstetrics and Gynecology, University of Pennsylvania, Philadelphia, Pennsylvania; [b] Monash Centre for Health Research and Implementation, School of Public Health and Preventive Medicine, Monash University, Melbourne, Victoria, Australia; and [c] American College of Obstetrics and Gynecology, Department of Research, Washington D.C.

Objective: To identify gaps in polycystic ovary syndrome (PCOS) knowledge and practice patterns among physicians in North America in response to significant dissatisfaction identified among women with PCOS regarding their diagnosis and treatment experience.
Design: Online survey conducted via American College of Obstetrics and Gynecology of gynecologists (ObGyn) and American Society of Reproductive Medicine of reproductive endocrinologists (REI-ObGyn) in 2015–16.
Setting: Not applicable.
Patient(s): None.
Intervention(s): None.
Main Outcome Measure(s): Diagnostic criteria used, key features of PCOS, management practices.
Result(s): Of the 630 surveys completed, 70.2% were ObGyn and 64.4% were females. Overall 27.7% respondents did not know which PCOS diagnostic criteria they used. In a multivariable analysis including physician type, age, gender, and number of patients with PCOS seen annually, REI-ObGyn were less likely compared with ObGyn to report not knowing which criteria they used (adjusted odds ratio, 0.08; 95% confidence interval, 0.04, 0.16). REI-ObGyn were more likely to use the Rotterdam criteria (odds ratio, 2.26; 95% confidence interval, 1.33, 3.82). The majority of respondents recognized the clinical features associated with PCOS; however, over one-third associated "cysts on ovaries" with PCOS. The majority of responders (>85%) were aware of cardiometabolic comorbidities; however, fewer ObGyn were aware of associated depression, anxiety disorders, and reduced quality of life. More REI-ObGyn recommended lifestyle changes compared with ObGyn (56.4% vs. 41.6%).
Conclusion(s): Our large-scale PCOS survey, conducted in response to patient concerns regarding diagnosis and treatment, highlights opportunities for physician education. Focus areas include targeting knowledge of internationally accepted Rotterdam criteria and ensuring consistent care informed by evidence-based guidelines across the reproductive, metabolic, and psychological features of PCOS. (Fertil Steril® 2017;■:■–■. ©2017 by American Society for Reproductive Medicine.)
Key Words: PCOS, diagnosis, treatment, physician survey, gaps in knowledge

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Polycystic ovary syndrome (PCOS) is the most common endocrine disorder in reproductive-age women. Its presentation can be heterogeneous, with an increased risk of obesity, impaired glucose tolerance, diabetes, dyslipidemia, anxiety, and depressive symptoms. Over the past two decades, tremendous progress has been made in extending our understanding of the epidemiology, phenotypes, evaluation and management, genetics, and long-term morbidities associated with PCOS. Despite these advances, women with PCOS express frustration as the most common emotion associated with PCOS (1) and report the PCOS diagnostic experience to be lengthy, involve multiple physicians, and be associated with many unmet needs (2). To better understand these perceptions worldwide, we recently surveyed a large international group of 1,385 women with PCOS and found that a third reported more than 2 years before diagnosis was established and approximately half had seen more than two

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Reprint requests: Dr. Anuja Dokras, M.D., Ph.D., 3701 Market Street, Suite 800, Philadelphia, Pennsylvania 19104 (E-mail: adokras@ObGyn.upenn.edu).

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health care providers before the diagnosis was confirmed (3). It has been suggested that time to diagnosis of PCOS is independently associated with increased risk of anxiety and depressive symptoms (4). These findings along with decreased patient satisfaction suggest opportunities to improve care.

Factors that may contribute to difficulties with establishing the diagnosis of PCOS include coexistence of multiple diagnostic criteria for PCOS (5–7), limitations with standardization of the definitions of clinical and biochemical hyperandrogenism, presence of multiple phenotypes, and change in presentations depending on the age and ethnicity of the patient (8). A number of medical societies have published guidelines for the diagnosis, treatment, and long-term management of PCOS (9–12). With the recent National Institutes of Health (NIH) workshop on PCOS endorsing the Rotterdam criteria and evidence-based guidance now available (13), we have the opportunity to overcome past confusion and align consistent evidence-based care. Yet previous physician surveys show differences in practice patterns between gynecologists and medical endocrinologists in Australia (14) and general gynecologists and gynecologic endocrinologists in Germany (15). Inconsistent approaches related to both diagnosis and treatment could have contributed to the frustrations expressed by patients in their diagnosis experience and long-term management of PCOS in our recent survey (3). We therefore surveyed physicians practicing in North America to better understand the factors contributing to dissatisfaction in women with PCOS in this region of the world. As the majority of these women are treated by a gynecologist (ObGyn) or reproductive endocrinologist (REI-ObGyn), we surveyed these two groups of physicians to identify gaps in knowledge regarding diagnostic criteria and key features of PCOS as well as to determine differences in practice patterns related to treatment. We ultimately wish to inform future strategies targeting physicians and patients to improve evidence-based care, patient satisfaction, and health outcomes.

MATERIALS AND METHODS

Study Design, Setting, and Participants

We conducted an online survey of all American Society for Reproductive Medicine (ASRM) and a random sampling of the American Congress of Obstetricians and Gynecologists (ACOG) members in 2015–16. The link to the questionnaire was emailed to the membership by the ACOG and ASRM administrative offices. The overall response rate was 12.3% out of 7,708. Inclusion criteria were residence in North America (Canada and United States) and physicians practicing gynecology or reproductive endocrinology and infertility (REI). The study was approved by the University of Pennsylvania Institutional Review Board. Participation was voluntary and anonymous. Completion of the survey was taken as consent to participate in the study.

Tools

The survey built on prior tools used internationally to survey health care providers in Australia (16) and Europe (17). The original Australian tool was based on evidenced-based guidelines, codeveloped by a multidisciplinary panel with consumer input. It was refined with multidisciplinary health professional and consumer input, disseminated, and published. In the tool used in the current study, we incorporated aspects of treatment from the European Society of Endocrinologists (17) survey and additional questions informed by patient survey responses. The survey included physician demographics, practice patterns, PCOS diagnostic criteria, key features of PCOS, and treatment and management questions (see Appendix). All participants were asked to complete the survey only once. No question was compulsory. Responses were collected using SurveyMethods software (SurveyMethods) and then exported and analyzed by the authors.

Statistical Methods

Statistical analysis was performed with Stata software version 14.1 (StataCorp). Categorical data are presented as count and percentage responses, and groups were compared using Pearson χ^2 tests. Variables included in the multivariable logistic regression included physician type, age, gender, and number of patients with PCOS seen annually. There were no differences in odds of not knowing PCOS criteria between those seeing 50–200 subjects or >200 subjects annually (Wald test $P=.228$), and thus these two groups were combined for analysis. $P<.05$ was considered statistically significant.

RESULTS

Demographics

Table 1 shows the demographic characteristics of 630 respondents residing in North America including 70.2% ObGyn and 29.8% REI-ObGyn. Overall, 64.4% of the participants were women and more than half were over 45 years of age. More ObGyn saw fewer than 50 patients with PCOS per year, and more REI-ObGyn saw 50–200 patients with PCOS per year. The most common reason for these visits differed between the two groups: infertility (80.4%) for REI-ObGyn and menstrual disturbances (80.4%) for ObGyn (Table 1).

PCOS Diagnostic Criteria

Most respondents reported the prevalence of PCOS to be between 11% and 20% (55% ObGyn and 50% REI-ObGyn). Overall, 172 (27.7%) reported that they did not know which criteria they used to make the diagnosis of PCOS or listed criteria other than those defined by NIH, Rotterdam, and Androgen Excess and PCOS Society (AE-PCOS Society) (5–7) (Fig. 1). This included 37.1% of ObGyn and 5.9% of REI-ObGyn ($P<.001$). Among those using one of the three established criteria, there were no differences in the criteria preferred by ObGyn versus REI-ObGyn (Rotterdam criteria were used by 65.6% vs. 72.6%, NIH criteria by 16.9% vs. 12.6%, and AE-PCOS Society criteria by 17.6% vs. 14.9%; $P=.282$). Overall, 4.4% of the respondents (3.8% REI-ObGyn and 4.6% ObGyn) selected "other" as the option for the diagnostic criteria, and the free text answers included "discuss all 3 criteria (Rotterdam/ESHRE, AE-PCOS, NIH)", "clinical, lab work, sometimes ultrasound", "anovulation, PCOS ovaries on US, signs of androgen excess, AMH level", "lab values, history and exam", and "glucose/insulin ratio