ANDROGEN EXCESS AND PCOS SOCIETY

Quarterly Review for Androgen Excess-PCOS Society
January 1st – March 31st, 2012

Contents

AEPCOS publications in January – March, 2012

Hirsutism is a common clinical feature of disorders associated with androgen excess. The prevalence is approximately 10% in most populations. For women, this increased hair growth in androgen dependent areas negatively impacts self-esteem and quality of life. Expert and experienced members of the Androgen Excess-PCOS Society performed a systematic review and critical assessment of available data related to epidemiology, pathophysiology, diagnosis, and management of hirsutism. For this comprehensive analysis, multiple databases were searched. The routine use of the nine body area modified Ferriman-Gallwey (mFG) score to quantify hirsutism was recommended. Further, the use of a cut-off value as the 95th percentile for the relevant population was recommended. In the absence of population norms, mFG scores $\geq$ 8 should be used for White and Black women; lower scores are appropriate for Far East and South East Asian women. The pathophysiology of hair growth and role of androgens in the hair follicle growth cycle were described. Careful scrutiny and exhaustive analysis regarding differential diagnosis, laboratory studies, and management recommendations are provided. This comprehensive document provides evidenced-based contemporary strategies to treat women with hirsutism.

This special issue of Steroids presents keynote presentations from the 9th Annual Meeting of the Androgen Excess & Polycystic Ovary Syndrome (AE–PCOS) Society held in Orlando, FL, USA on October 13–15, 2011. The issue serves as an important source of information on new developments and clinical recommendations related to metabolic, reproductive, immunological and psychological issues and each publication is authored by internationally-recognized authorities in the field of PCOS and other androgen excess disorders. AEPCOS intends that the knowledge provided in this special edition of Steroids enables improved care of women affected with these common and important disorders. Individual speaker topics are listed below:

List of January – March, 2012 Quarterly Publications

Brief summaries of selected publications

Congenital Adrenal Hyperplasia and Disorders of Steroidogenesis

Kamrath C, Hochberg Z, Hartmann MF, Remer T, Wudy SA. Increased activation of the alternative "backdoor" pathway in patients with 21-hydroxylase deficiency: evidence from urinary steroid hormone analysis. J Clin Endocrinol Metab. 2012 Mar;97(3):E367-75. Epub 2011 Dec 14 32

PCOS - Etiology and Animal Models

Amalfi S, Velez LM, Heber MF, Vighi S, Ferreira SR, Orozco AV, Pignataro O, Motta AB. Prenatal hyperandrogenization induces metabolic and endocrine alterations which depend on the levels of testosterone exposure. PLoS One. 2012;7(5):e37658. PubMed PMID: 22655062; PubMed Central PMCID: PMC3360026. 32

McGee WK, Bishop CV, Bahar A, Pohl CR, Chang RJ, Marshall JC, Pau FK, Stouffer RL, Cameron JL. Elevated androgens during puberty in female rhesus monkeys lead to increased neuronal drive to the reproductive axis: a possible component of polycystic ovary syndrome. Hum Reprod. 2012 Feb;27(2):531-40. PubMed PMID: 22114112; PubMed Central PMCID: PMC3258033. 33

Veiga-Lopez A, Ye W, Padmanabhan V. Developmental programming: prenatal testosterone excess disrupts anti-Müllerian hormone expression in preantral and antral follicles. Fertil Steril. 2012 Mar;97(3):748-56. PubMed PMID: 22245531; PubMed Central PMCID: PMC3292625. 33

PCOS – Ovary

Homburg R, Hendriks ML, König TE, Anderson RA, Balen AH, Brincat M, Child T, Davies M, D'Hooghe T, Martinez A, Rajkhowa M, Rueda-Saenz R, Hompes P, Lambalk CB. Clomifene citrate or low-dose FSH for the first-line treatment of infertile women with anovulation associated with polycystic ovary syndrome: a prospective randomized multinational study. Hum Reprod. 2012 Feb;27(2):468-73. PubMed PMID: 22128296. ... 33

PCOS – Phenotypic Variation

Amsterdam ESHRE/ASRM-Sponsored 3rd PCOS Consensus Workshop Group. Consensus on women's health aspects of polycystic ovary syndrome (PCOS). Hum Reprod. 2012 Jan;27(1):14-24. PubMed PMID: 22147920.

AND

Fauser BC, Tarlatzis BC, Rebar RW, Legro RS, Balen AH, Lobo R, Carmina E, Chang J, Yildiz BO, Laven JS, Boivin J, Petraglia F, Wijeyeratne CN, Norman RJ, Dunaif A, Franks S, Wild RA, Dumesic D, Barnhart K. Consensus on women's health aspects of polycystic

List of January – March, 2012 Quarterly Publications

Congenital Adrenal Hyperplasia and Disorders of Steroidogenesis

Auchus RJ, Miller WL. Congenital adrenal hyperplasia--more dogma bites the dust. J Clin Endocrinol Metab. 2012 Mar;97(3):772-5.

Ben Charfeddine I, Riepe FG, Kahloul N, Kulle AE, Adala L, Mamaï O, Amara A, Mili A, Amri F, Saad A, Holterhus PM, Gribaa M. Two novel CYP11B1 mutations in congenital adrenal hyperplasia due to steroid 11β hydroxylase deficiency in a Tunisian family. Gen Comp Endocrinol. 2012 Feb 1;175(3):514-8. Epub 2011 Dec 22

Berenbaum SA, Bryk KL, Beltz AM. Early androgen effects on spatial and mechanical abilities: evidence from congenital adrenal hyperplasia. Behav Neurosci. 2012 Feb;126(1):86-96

Cheng TQ, Speiser PW. Treatment outcomes in congenital adrenal hyperplasia. Adv Pediatr. 2012;59(1):269-81.

Choi JH, Jin HY, Lee BH, Ko JM, Lee JJ, Kim GH, Jung CW, Lee J, Yoo HW. Clinical phenotype and mutation spectrum of the CYP21A2 gene in patients with steroid 21-hydroxylase deficiency. Exp Clin Endocrinol Diabetes. 2012 Jan;120(1):23-7. Epub 2011 Oct 21.

Coulm B, Coste J, Tardy V, Ecosse E, Roussey M, Morel Y, Carel JC; DHCSF Study Group. Efficiency of neonatal screening for congenital adrenal hyperplasia due to 21-hydroxylase deficiency in children born in mainland France between 1996 and 2003. Arch Pediatr Adolesc Med. 2012 Feb;166(2):113-20

Falhammar H, Thorén M. Clinical outcomes in the management of congenital adrenal hyperplasia. Endocrine. 2012 Jun;41(3):355-73. Epub 2012 Jan 7. Review

Idkowiak J, Randell T, Dhir V, Patel P, Shackleton CH, Taylor NF, Krone N, Arlt W. A missense mutation in the human cytochrome b5 gene causes 46,XY disorder of sex development due to true isolated 17,20 lyase deficiency. J Clin Endocrinol Metab. 2012 Mar;97(3):E465-75. Epub 2011 Dec 14.

Janzen N, Riepe FG, Peter M, Sander S, Steuerwald U, Korsch E, Krull F, Müller HL, Heger S, Brack C, Sander J. Neonatal screening: identification of children with 11β-hydroxylase deficiency by second-tier testing. Horm Res Paediatr. 2012;77(3):195-9.

Jeandron DD, Sahakitrungruang T. A novel homozygous Q334X mutation in the HSD3B2 gene causing classic 3β-hydroxysteroid dehydrogenase deficiency: an unexpected diagnosis after a positive newborn screen for 21-hydroxylase deficiency. Horm Res Paediatr. 2012;77(5):334-8. doi: 10.1159/000336004. Epub 2012 Feb 9

Kamrath C, Hochberg Z, Hartmann MF, Remer T, Wudy SA. Increased activation of the alternative "backdoor" pathway in patients with 21-hydroxylase deficiency: evidence from urinary steroid hormone analysis. J Clin Endocrinol Metab. 2012 Mar;97(3):E367-75. Epub 2011 Dec 14

Khalid JM, Oerton JM, Dezateux C, Hindmarsh PC, Kelnar CJ, Knowles RL. Incidence and clinical features of congenital adrenal hyperplasia in Great Britain. Arch Dis Child. 2012 Feb;97(2):101-6.

Krone N, Reisch N, Idkowiak J, Dhir V, Ivison HE, Hughes BA, et al. Genotype-phenotype analysis in congenital adrenal hyperplasia due to P450 oxidoreductase deficiency. J Clin Endocrinol Metab. 2012 Feb;97(2):E257-67. Epub 2011 Dec 7

Lee MH, Won Park S, Yoon TK, Shim SH. Homozygous CYP17A1 mutation (H373L) identified in a 46,XX female with combined 17α-hydroxylase/17,20-lyase deficiency. Gynecol Endocrinol. 2012 Jul;28(7):573-6. doi: 10.3109/09513590.2011.650743. Epub 2012 Mar 28

Menabò S, Balsamo A, Baldazzi L, Barbaro M, Nicoletti A, Conti V, Pirazzoli P, Wedell A, Cicognani A. A sequence variation in 3'UTR of CYP21A2 gene correlates with a mild form of congenital adrenal hyperplasia. J Endocrinol Invest. 2012 Mar;35(3):298-305. Epub 2011 Apr 26

Miller WL. The syndrome of 17,20 lyase deficiency. J Clin Endocrinol Metab. 2012 Jan;97(1):59-67. Epub 2011 Nov 9. Review

Mnif MF, Kamoun M, Mnif F, Charfi N, Kallel N, Naceur BB, Rekik N, Mnif Z, Sfar MH, Sfar MT, Hachicha M, Keskes LA, Abid M. Long-Term Outcome of Patients With Congenital Adrenal Hyperplasia Due to 21-hydroxylase Deficiency. Am J Med Sci. 2012 Jan 20. PubMed PMID: 22270393.

Pijnenburg-Kleizen KJ, Borm GF, Otten BJ, Schott DA, van den Akker EL, Stokvis-Brantsma WH, Voorhoeve PG, Bakker B, Claahsen-van der Grinten HL. Absence of clinically relevant growth acceleration in untreated children with non-classical congenital adrenal hyperplasia. Horm Res Paediatr. 2012;77(3):164-9.

Rabbani B, Mahdieh N, Ashtiani MT, Larijani B, Akbari MT, New M, Parsa A, Schouten JP, Rabbani A. Mutation analysis of the CYP21A2 gene in the Iranian population. Genet Test Mol Biomarkers. 2012 Feb;16(2):82-90. Epub 2011 Oct 21.

Ryckman KK, Cook DE, Berberich SL, Shchelochkov OA, Berends SK, Busch T, Dagle JM, Murray JC. Replication of clinical associations with 17-hydroxyprogesterone in preterm newborns. J Pediatr Endocrinol Metab. 2012;25(3-4):301-5

Salle JL, Lorenzo AJ, Jesus LE, Leslie B, AlSaid A, Macedo FN, Jayanthi VR, de Castro R. Surgical treatment of high urogenital sinuses using the anterior sagittal transrectal approach: a useful strategy to optimize exposure and outcomes. J Urol. 2012 Mar;187(3):1024-31. Epub 2012 Jan 20

Sanches SA, Wiegers TA, Otten BJ, Claahsen-van der Grinten HL. Physical, social and societal functioning of children with congenital adrenal hyperplasia (CAH) and their parents, in a Dutch population. Int J Pediatr Endocrinol. 2012 Feb 2;2012(1):2. doi: 10.1186/1687-9856-2012-2

Trapp CM, Oberfield SE. Recommendations for treatment of nonclassic congenital adrenal hyperplasia (NCCAH): an update. Steroids. 2012 Mar 10;77(4):342-6. Epub 2011 Dec 13. Review

Vigliani MB, Buster JE. Nonclassic 21-hydroxylase deficiency presenting as endometrial hyperplasia with uterine bleeding in a 67-year-old woman. Fertil Steril. 2012 Apr;97(4):950-2. Epub 2012 Jan 23

Votava F, Novotna D, Kracmar P, Vinohradska H, Stahlova-Hrabincova E, Vrzalova Z, Neumann D, Malikova J, Lebl J, Matern D. Lessons learned from 5 years of newborn screening for congenital adrenal hyperplasia in the Czech Republic: 17-hydroxyprogesterone, genotypes, and screening performance. Eur J Pediatr. 2012 Jun;171(6):935-40. doi: 10.1007/s00431-011-1656-6. Epub 2012 Jan 11

Zhao B, Lei L, Kagawa N, Sundaramoorthy M, Banerjee S, Nagy LD, Guengerich FP, Waterman MR.Three-dimensional structure of steroid 21-hydroxylase (cytochrome P450 21A2) with two substrates reveals locations of disease-associated variants. J Biol Chem. 2012 Mar 23;287(13):10613-22. Epub 2012 Jan 18

Insulin resistance

Amati F, Pennant M, Azuma K, Dubé JJ, Toledo FG, Rossi AP, Kelley DE, Goodpaster BH. Lower thigh subcutaneous and higher visceral abdominal adipose tissue content both contribute to insulin resistance. Obesity (Silver Spring). 2012 May;20(5):1115-7. doi: 10.1038/oby.2011.401. Epub 2012 Jan 19

Ardabili HR, Gargari BP, Farzadi L. Vitamin D supplementation has no effect on insulin resistance assessment in women with polycystic ovary syndrome and vitamin D deficiency. Nutr Res. 2012 Mar;32(3):195-201. doi: 10.1016/j.nutres.2012.02.001

Comerford KB, Almario RU, Kim K, Karakas SE. Lean mass and insulin resistance in women with polycystic ovary syndrome. Metabolism. 2012 Sep;61(9):1256-60. doi: 10.1016/j.metabol.2012.02.004. Epub 2012 Mar 17

Cuda C, Garcia-Bailo B, Karmali M, El-Sohemy A, Badawi A. A common polymorphism near the interleukin-6 gene modifies the association between dietary fat intake and insulin sensitivity. J Inflamm Res. 2012;5:1-6. doi: 10.2147/JIR.S27911. Epub 2012 Jan 9

Diamanti-Kandarakis E, Spritzer PM, Sir-Petermann T, Motta AB. Insulin resistance and polycystic ovary syndrome through life. Curr Pharm Des. 2012;18(34):5569-76.

Gaillard TR, Schuster D, Osei K. Characterization of metabolically unhealthy overweight/obese African American women: significance of insulin-sensitive and insulin-resistant phenotypes. J Natl Med Assoc. 2012 Mar-Apr;104(3-4):164-71

Li W, Ma L, Li Q. Insulin resistance but not impaired β-cell function: a key feature in Chinese normal-weight PCOS women with normal glucose regulation. Gynecol Endocrinol. 2012 Aug;28(8):598-601. doi: 10.3109/09513590.2011.650757. Epub 2012 Feb 6.

Rivero R, Garin CA, Ormazabal P, Silva A, Carvajal R, Gabler F, Romero C, Vega M. Protein expression of PKCZ (Protein Kinase C Zeta), Munc18c, and Syntaxin-4 in the insulin pathway in endometria of patients with polycystic ovary syndrome (PCOS). Reprod Biol Endocrinol. 2012 Mar 5;10:17. doi: 10.1186/1477-7827-10-17

Saxena R, Welt CK.Polycystic ovary syndrome is not associated with genetic variants that mark risk of type 2 diabetes. Acta Diabetol. 2012 Mar 3. [Epub ahead of print]

Semba RD, Sun K, Egan JM, Crasto C, Carlson OD, Ferrucci L. Relationship of serum fibroblast growth factor 21 with abnormal glucose metabolism and insulin resistance: the Baltimore Longitudinal Study of Aging. J Clin Endocrinol Metab. 2012 Apr;97(4):1375-82. doi: 10.1210/jc.2011-2823. Epub 2012 Feb 16

Tucker LA, Tucker JM. Insulin resistance as a predictor of gains in body fat, weight, and abdominal fat in nondiabetic women: a prospective study. Obesity (Silver Spring). 2012 Jul;20(7):1503-10. doi: 10.1038/oby.2012.44. Epub 2012 Feb 21.

Ucak S, Basat O, Satir E, Altuntas Y. Evaluation of various insulin sensitivity indices in lean idiopathic hirsutism patients. Endocr J. 2012;59(4):291-6. Epub 2012 Feb 10

Weickert MO, Hodges P, Tan BK, Randeva HS. Neuroendocrine and endocrine dysfunction in the hyperinsulinemic PCOS patient: the role of metformin. Minerva Endocrinol. 2012 Mar;37(1):25-40.

Polycystic ovary syndrome (PCOS)

PCOS – Adolescence

Bechtold S, Dalla Pozza R, Putzker S, Roeb J, Buckel M, Weissenbacher C, Schmidt H. Effect of antiandrogen treatment on bone density and bone geometry in adolescents with polycystic ovary syndrome. J Pediatr Adolesc Gynecol. 2012 Jun;25(3):175-80. PubMed PMID: 22260890.

Carroll J, Saxena R, Welt CK. Environmental and genetic factors influence age at menarche in women with polycystic ovary syndrome. J Pediatr Endocrinol Metab. 2012;25(5-6):459-66. PubMed PMID: 22876539.

Catteau-Jonard S, Cortet-Rudelli C, Richard-Proust C, Dewailly D. Hyperandrogenism in adolescent girls. Endocr Dev. 2012;22:181-93. PubMed PMID: 22846529.

Codner E, Soto N, Merino PM. Contraception, and pregnancy in adolescents with type 1 diabetes: a review. Pediatr Diabetes. 2012 Feb;13(1):108-23. PubMed PMID: 21995767.

de Sousa G, Schlüter B, Buschatz D, Menke T, Trowitzsch E, Andler W, Reinehr T. The impact of insulin resistance and hyperandrogenemia on polysomnographic variables in obese adolescents with polycystic ovarian syndrome. Sleep Breath. 2012 Mar;16(1):169-75. PubMed PMID: 21221823.

Deveer R, Engin-Üstün Y, Uysal S, Su FA, Sarıaslan S, Gülerman C, Mollamahmutoğlu L. Serum brain natriuretic peptide and C-reactive protein levels in adolescent with polycystic ovary syndrome. Gynecol Endocrinol. 2012 Aug;28(8):602-5. PubMed PMID: 22316276.

Dowdy D. Emotional needs of teens with polycystic ovary syndrome. J Pediatr Nurs. 2012 Feb;27(1):55-64. PubMed PMID: 22222107.

Eleftheriadou M, Michala L, Stefanidis K, Iliadis I, Lykeridou A, Antsaklis A. Exercise and sedentary habits among adolescents with PCOS. J Pediatr Adolesc Gynecol. 2012 Jun;25(3):172-4. PubMed PMID: 22260889.

Hsia Y, Dawoud D, Sutcliffe AG, Viner RM, Kinra S, Wong IC. Unlicensed use of metformin in children and adolescents in the UK. Br J Clin Pharmacol. 2012 Jan;73(1):135-9. PubMed PMID: 21762204; PubMed Central PMCID: PMC3248263.

Jakubowski KP, Black JJ, El Nokali NE, Belendiuk KA, Hannon TS, Arslanian SA, Rofey DL. Parents' Readiness to Change Affects BMI Reduction Outcomes in Adolescents with Polycystic Ovary Syndrome. J Obes. 2012;2012:298067. PubMed PMID: 22970350; PubMed Central PMCID: PMC3433146.

Kostev K, Richter H. Unlicensed use of metformin in children and adolescents in Germany and France. Br J Clin Pharmacol. 2012 Feb;73(2):307-8. PubMed PMID: 22023105; PubMed Central PMCID: PMC3269590.

Maliqueo M, Galgani JE, Pérez-Bravo F, Echiburú B, de Guevara AL, Crisosto N, Sir-Petermann T. Relationship of serum adipocyte-derived proteins with insulin sensitivity and reproductive features in pre-pubertal and pubertal daughters of polycystic ovary syndrome women. Eur J Obstet Gynecol Reprod Biol. 2012 Mar;161(1):56-61. PubMed PMID: 22277163.

Nair MK, Pappachan P, Balakrishnan S, Leena ML, George B, Russell PS. Menstrual irregularity and poly cystic ovarian syndrome among adolescent girls--a 2 year follow-up study. Indian J Pediatr. 2012 Jan;79 Suppl 1:S69-73. PubMed PMID: 21769526.

Sopher AB, Gerken AT, Blaner WS, Root JM, McMahon DJ, Oberfield SE. Metabolic manifestations of polycystic ovary syndrome in nonobese adolescents: retinol-binding protein 4 and ectopic fat deposition. Fertil Steril. 2012 Apr;97(4):1009-15. PubMed PMID: 22341881.

Williams RM, Ward CE, Hughes IA. Premature adrenarche. Arch Dis Child. 2012 Mar;97(3):250-4. PubMed PMID: 21835833.

PCOS – Dermatology and Body Hair Complications

Bode D, Seehusen DA, Baird D. Hirsutism in women. Am Fam Physician. 2012 Feb 15;85(4):373-80. PubMed PMID: 22335316.

Escobar-Morreale HF, Carmina E, Dewailly D, Gambineri A, Kelestimur F, Moghetti P, Pugeat M, Qiao J, Wijeyaratne CN, Witchel SF, Norman RJ. Epidemiology, diagnosis and management of hirsutism: a consensus statement by the Androgen Excess and Polycystic Ovary Syndrome Society. Hum Reprod Update. 2012 Mar-Apr;18(2):146-70. PubMed PMID: 22064667.

Guzel AI, Kuyumcuoğlu U, Celik Y. Factors affecting the degree of hirsutism in patients with polycystic ovary syndrome. Arch Gynecol Obstet. 2012 Mar;285(3):767-70. PubMed PMID: 21909749.

Unluhizarci K, Kaltsas G, Kelestimur F. Non polycystic ovary syndrome-related endocrine disorders associated with hirsutism. Eur J Clin Invest. 2012 Jan;42(1):86-94. PubMed PMID: 21623779.

Vieira CS, Martins WP, Fernandes JB, Soares GM, Dos Reis RM, de Sá MF, Ferriani RA. The effects of 2 mg chlormadinone acetate/30 mcg ethinylestradiol, alone or combined with spironolactone, on cardiovascular risk markers in women with polycystic ovary syndrome. Contraception. 2012 Sep;86(3):268-75. PubMed PMID: 22464410.

Yin Z, Xu J, Luo D, Zhang M. Sebaceous hyperplasia within epidermis after scald. J Cutan Pathol. 2012 Jan;39(1):75-7. PubMed PMID: 22077362.

PCOS – Endocrine Disrupters

None.

PCOS – Etiology and Animal Models

Abbott AD, Colman RJ, Tiefenthaler R, Dumesic DA, Abbott DH. Early-to-Mid Gestation Fetal Testosterone Increases Right Hand 2D:4D Finger Length Ratio in Polycystic Ovary Syndrome-Like Monkeys. PLoS One. 2012;7(8):e42372. PubMed PMID: 22927929; PubMed Central PMCID: PMC3425513.

Amalfi S, Velez LM, Heber MF, Vighi S, Ferreira SR, Orozco AV, Pignataro O, Motta AB. Prenatal hyperandrogenization induces metabolic and endocrine alterations which depend on the levels of testosterone exposure. PLoS One. 2012;7(5):e37658. PubMed PMID: 22655062; PubMed Central PMCID: PMC3360026.

Atis A, Aydin Y, Ciftci F, Sakız D, Arslan A, Toklu AS, Donmez M, Goker N. Hyberbaric oxygen increases atresia in normal & steroid induced PCO rat ovaries. Reprod Biol Endocrinol. 2012 Feb 6;10:11. PubMed PMID: 22309835; PubMed Central PMCID: PMC3395821.

Barber TM, Franks S. The link between polycystic ovary syndrome and both Type 1 and Type 2 diabetes mellitus: what do we know today? Womens Health (Lond Engl). 2012 Mar;8(2):147-54. PubMed PMID: 22375718.

Bellanger S, Battista MC, Fink GD, Baillargeon JP. Saturated fatty acid exposure induces androgen overproduction in bovine adrenal cells. Steroids. 2012 Mar 10;77(4):347-53. PubMed PMID: 22245830.

Crisosto N, Echiburú B, Maliqueo M, Pérez V, Ladrón de Guevara A, Preisler J, Sánchez F, Sir-Petermann T. Improvement of hyperandrogenism and hyperinsulinemia during pregnancy in women with polycystic ovary syndrome: possible effect in the ovarian follicular mass of their daughters. Fertil Steril. 2012 Jan;97(1):218-24. PubMed PMID: 22088206.

Davies MJ, March WA, Willson KJ, Giles LC, Moore VM. Birthweight and thinness at birth independently predict symptoms of polycystic ovary syndrome in adulthood. Hum Reprod. 2012 May;27(5):1475-80. PubMed PMID: 22373955.

Deveci HS, Deveci I, Habesoglu M, Sürmeli M, Kınıs V, Eriman M, Gunes P, Yekrek M, Egeli E. Histological evaluation of rat larynx in experimental polycystic ovary syndrome model. Eur Arch Otorhinolaryngol. 2012 Aug;269(8):1945-50. PubMed PMID: 22407189.

Dikmen A, Ergenoglu AM, Yeniel AO, Dilsiz OY, Ercan G, Yilmaz H. Evaluation of glycemic and oxidative/antioxidative status in the estradiol valerate-induced PCOS model of rats. Eur J Obstet Gynecol Reprod Biol. 2012 Jan;160(1):55-9. PubMed PMID: 22071112.

Feng Y, Johansson J, Shao R, Mannerås-Holm L, Billig H, Stener-Victorin E. Electrical and manual acupuncture stimulation affect oestrous cyclicity and neuroendocrine function in an 5α-dihydrotestosterone-induced rat polycystic ovary syndrome model. Exp Physiol. 2012 May;97(5):651-62. PubMed PMID: 22337865.

Figueroa F, Davicino R, Micalizzi B, Oliveros L, Forneris M. Macrophage secretions modulate the steroidogenesis of polycystic ovary in rats: effect of testosterone on macrophage pro-inflammatory cytokines. Life Sci. 2012 May 22;90(19-20):733-9. PubMed PMID: 22480516.

Franks S, Berga SL. Does PCOS have developmental origins? Fertil Steril. 2012 Jan;97(1):2-6. PubMed PMID: 22192134; PubMed Central PMCID: PMC3263824.

Hogg K, Young JM, Oliver EM, Souza CJ, McNeilly AS, Duncan WC. Enhanced thecal androgen production is prenatally programmed in an ovine model of polycystic ovary syndrome. Endocrinology. 2012 Jan;153(1):450-61. PubMed PMID: 22087026.

Jeong SJ, Kim SS, Bae CS, Park JJ, Choi BD, Wang G, Jung MJ, Jang HS, Kim BO, Lim DS, Cho YS, Jeong MJ. Delayed healing and induction of secretory leukocyte protease inhibitor in polycystic ovary syndrome rat skin wounds. Int J Mol Med. 2012 Feb;29(2):185-94. PubMed PMID: 22020578.

Li PF, Wang F, Kong HJ, Zhao F, Bai AH, Chen XM, Sun YP. Establishment of polycystic ovary syndrome-derived human embryonic stem cell lines. Gynecol Endocrinol. 2012 Jan;28(1):25-8. PubMed PMID: 21780950.

Luna SL, Neuman S, Aguilera J, Brown DI, Lara HE. In vivo β-adrenergic blockade by propranolol prevents isoproterenol-induced polycystic ovary in adult rats. Horm Metab Res. 2012 Sep;44(9):676-81. PubMed PMID: 22328164.

Mahesh VB. Hirsutism, virilism, polycystic ovarian disease, and the steroid-gonadotropin-feedback system: a career retrospective. Am J Physiol Endocrinol Metab. 2012 Jan 1;302(1):E4-E18. PubMed PMID: 22028409; PubMed Central PMCID: PMC3328092.

McGee WK, Bishop CV, Bahar A, Pohl CR, Chang RJ, Marshall JC, Pau FK, Stouffer RL, Cameron JL. Elevated androgens during puberty in female rhesus monkeys lead to increased neuronal drive to the reproductive axis: a possible component of polycystic ovary syndrome. Hum Reprod. 2012 Feb;27(2):531-40. PubMed PMID: 22114112; PubMed Central PMCID: PMC3258033.

Miao ZL, Guo L, Wang YX, Cui R, Yang N, Huang MQ, Qin WB, Chen J, Li HM, Wang ZN, Wei XC. The intervention effect of Rosiglitozone in ovarian fibrosis of PCOS rats. Biomed Environ Sci. 2012 Feb;25(1):46-52. PubMed PMID: 22424626.

Park E, Cockrem JF, Han KH, Kim DH, Jung MH, Chu JP. Stress-induced activation of ovarian heat shock protein 90 in a rat model of polycystic ovary syndrome. J Obstet Gynaecol Res. 2012 Feb;38(2):396-407. PubMed PMID: 22176470.

Ortega I, Cress AB, Wong DH, Villanueva JA, Sokalska A, Moeller BC, Stanley SD, Duleba AJ. Simvastatin reduces steroidogenesis by inhibiting Cyp17a1 gene expression in rat ovarian theca-interstitial cells. Biol Reprod. 2012 Jan 30;86(1):1-9. PMID: 21918126; PubMed Central PMCID: PMC3313666.

Polyzos SA, Kountouras J, Deretzi G, Zavos C, Mantzoros CS. The emerging role of endocrine disruptors in pathogenesis of insulin resistance: a concept implicating nonalcoholic fatty liver disease. Curr Mol Med. 2012 Jan;12(1):68-82. PubMed PMID: 22082482.

Qu F, Wang FF, Yin R, Ding GL, El-Prince M, Gao Q, Shi BW, Pan HH, Huang YT, Jin M, Leung PC, Sheng JZ, Huang HF. A molecular mechanism underlying ovarian dysfunction of polycystic ovary syndrome: hyperandrogenism induces epigenetic alterations in the granulosa cells. J Mol Med (Berl). 2012 Aug;90(8):911-23. PubMed PMID: 22349439.

Restuccia DF, Hynx D, Hemmings BA. Loss of PKBβ/Akt2 predisposes mice to ovarian cyst formation and increases the severity of polycystic ovary formation in vivo. Dis Model Mech. 2012 May;5(3):403-11. PubMed PMID: 22275470; PubMed Central PMCID: PMC3339834.

Rodrigues DM Jr, dos Santos AR, Cavalcante AA, Alencar AP, Lopes-Costa PV, da Silva BB. Assessment of micronucleus frequency in the peripheral blood of female rats in persistent estrus treated with selective estrogen receptor modulators. Environ Mol Mutagen. 2012 Jan;53(1):51-4. PubMed PMID: 22223434.

Sara L, Antal P, Masszi G, Buday A, Horvath EM, Hamar P, Monos E, Nadasy GL, Varbiro S. Arteriolar insulin resistance in a rat model of polycystic ovary syndrome. Fertil Steril. 2012 Feb;97(2):462-8. PubMed PMID: 22154764.

Sir-Petermann T, Ladrón de Guevara A, Codner E, Preisler J, Crisosto N, Echiburú B, Maliqueo M, Sánchez F, Perez-Bravo F, Cassorla F. Relationship between anti-Müllerian hormone (AMH) and insulin levels during different tanner stages in daughters of women with polycystic ovary syndrome. Reprod Sci. 2012 Apr;19(4):383-90. PubMed PMID: 22344736.

Tang XH, Cao YL, Yang ZX, Zhao FX. Reproductive traits of polycystic ovary syndrome in female rhesus monkeys. Dongwuxue Yanjiu. 2012 Feb;33(1):37-42. PubMed PMID: 22345006.

Tyndall V, Broyde M, Sharpe R, Welsh M, Drake AJ, McNeilly AS. Effect of androgen treatment during foetal and/or neonatal life on ovarian function in prepubertal and adult rats. Reproduction. 2012 Jan;143(1):21-33. PubMed PMID: 22016380; PubMed Central PMCID: PMC3245827.

van Houten EL, Kramer P, McLuskey A, Karels B, Themmen AP, Visser JA. Reproductive and metabolic phenotype of a mouse model of PCOS. Endocrinology. 2012 Jun;153(6):2861-9. PubMed PMID: 22334715.

Vanky E, Carlsen SM. Androgens and antimüllerian hormone in mothers with polycystic ovary syndrome and their newborns. Fertil Steril. 2012 Feb;97(2):509-15. PubMed PMID: 22154766.

Veiga-Lopez A, Ye W, Padmanabhan V. Developmental programming: prenatal testosterone excess disrupts anti-Müllerian hormone expression in preantral and antral follicles. Fertil Steril. 2012 Mar;97(3):748-56. PubMed PMID: 22245531; PubMed Central PMCID: PMC3292625.

Walters KA, Allan CM, Handelsman DJ. Rodent models for human polycystic ovary syndrome. Biol Reprod. 2012 May 10;86(5):149, 1-12. PubMed PMID: 22337333.

Wu S, Divall S, Wondisford F, Wolfe A. Reproductive tissues maintain insulin sensitivity in diet-induced obesity. Diabetes. 2012 Jan;61(1):114-23. PubMed PMID: 22076926; PubMed Central PMCID: PMC3237653.

Zhai HL, Wu H, Xu H, Weng P, Xia FZ, Chen Y, Lu YL. Trace glucose and lipid metabolism in high androgen and high-fat diet induced polycystic ovary syndrome rats. Reprod Biol Endocrinol. 2012 Jan 25;10:5. PubMed PMID: 22276997; PubMed Central PMCID: PMC3278365.

PCOS – General Health Concerns

Costa EC, Azevedo GD. Defining exercise prescription in lifestyle modification programs for overweight/obese polycystic ovary syndrome women. Fertil Steril. 2012 Feb;97(2):e5; author reply e6. PubMed PMID: 22200176.

Harrison CL, Stepto NK, Hutchison SK, Teede HJ. The impact of intensified exercise training on insulin resistance and fitness in overweight and obese women with and without polycystic ovary syndrome. Clin Endocrinol (Oxf). 2012 Mar;76(3):351-7. PubMed PMID: 21711376.

Isik S, Ozcan HN, Ozuguz U, Berker D, Tutuncu Y, Akbaba G, Guler S. Impaired gallbladder motility and the effect of metformin therapy in patients with polycystic ovary syndrome. Clin Endocrinol (Oxf). 2012 Mar;76(3):373-8. PubMed PMID: 21883348.

Kozica SL, Deeks AA, Gibson-Helm ME, Teede HJ, Moran LJ. Health-related behaviors in women with lifestyle-related diseases. Behav Med. 2012;38(3):65-73. PubMed PMID: 22873731.

Saha L, Kaur S, Saha PK. Pharmacotherapy of polycystic ovary syndrome--an update. Fundam Clin Pharmacol. 2012 Feb;26(1):54-62. PubMed PMID: 21210850.

PCOS – Genetics

Bidzińska-Speichert B, Lenarcik A, Tworowska-Bardzińska U, Ślęzak R, Bednarek-Tupikowska G, Milewicz A. Pro12Ala PPAR γ2 gene polymorphism in PCOS women: the role of compounds regulating satiety. Gynecol Endocrinol. 2012 Mar;28(3):195-8. PubMed PMID: 21827375.

Chua AK, Azziz R, Goodarzi MO. Association study of CYP17 and HSD11B1 in polycystic ovary syndrome utilizing comprehensive gene coverage. Mol Hum Reprod. 2012 Jun;18(6):320-4. PubMed PMID: 22238371; PubMed Central PMCID: PMC3358039.

Costa F, Dornelles E, Mânica-Cattani MF, Algarve TD, Souza Filho OC, Sagrillo MR, Garcia LF, Cruz IB. Influence of Val16Ala SOD2 polymorphism on the in-vitro effect of clomiphene citrate in oxidative metabolism. Reprod Biomed Online. 2012 Apr;24(4):474-81. PubMed PMID: 22386763.

Curry A. Better care for PCOS. Studying women's genes to find out what works. Diabetes Forecast. 2012 Mar;65(3):71-2. PubMed PMID: 22439384.

Dasgupta S, Sirisha PV, Neelaveni K, Anuradha K, Reddy BM. Association of CAPN10 SNPs and haplotypes with polycystic ovary syndrome among South Indian Women. PLoS One. 2012;7(2):e32192. PubMed PMID: 22384174; PubMed Central PMCID: PMC3285666.

Echiburú B, Pérez-Bravo F, Maliqueo M, Ladrón de Guevara A, Gálvez C, Crisosto N, Sir-Petermann T. CAG repeat polymorphism of androgen receptor gene and X-chromosome inactivation in daughters of women with polycystic ovary syndrome (PCOS): relationship with endocrine and metabolic parameters. Gynecol Endocrinol. 2012 Jul;28(7):516-20. PubMed PMID: 22724574.

Gao L, Zhang Y, Cui Y, Jiang Y, Wang X, Liu J. Association of the T45G and G276T polymorphisms in the adiponectin gene with PCOS: A meta-analysis. Gynecol Endocrinol. 2012 Feb;28(2):106-10. PubMed PMID: 22074033.

Goodarzi MO, Jones MR, Li X, Chua AK, Garcia OA, Chen YD, Krauss RM, Rotter JI, Ankener W, Legro RS, Azziz R, Strauss JF 3rd, Dunaif A, Urbanek M. Replication of association of DENND1A and THADA variants with polycystic ovary syndrome in European cohorts. J Med Genet. 2012 Feb;49(2):90-5. PubMed PMID: 22180642.

Guediche N, Tosca L, Kara Terki A, Bas C, Lecerf L, Young J, Briand-Suleau A, Tou B, Bouligand J, Brisset S, Misrahi M, Guiochon-Mantel A, Goossens M, Tachdjian G. Array comparative genomic hybridization analysis of small supernumerary marker chromosomes in human infertility. Reprod Biomed Online. 2012 Jan;24(1):72-82. PubMed PMID: 22116069.

Hill LD, Ewens KG, Maher BS, York TP, Legro RS, Dunaif A, Strauss JF 3rd. Catechol-O-methyltransferase (COMT) single nucleotide polymorphisms and haplotypes are not major risk factors for polycystic ovary syndrome. Mol Cell Endocrinol. 2012 Mar 5;350(1):72-7. PubMed PMID: 22178088; PubMed Central PMCID: PMC3264817.

Huang M, Xiao J, Zhao X, Liu C, Chen Q. Four polymorphisms of the CAPN 10 gene and their relationship to polycystic ovary syndrome susceptibility: a meta-analysis. Clin Endocrinol (Oxf). 2012 Mar;76(3):431-8. PubMed PMID: 21906115.

Jain M, Pandey P, Tiwary NK, Jain S. MTHFR C677T polymorphism is associated with hyperlipidemia in women with polycystic ovary syndrome. J Hum Reprod Sci. 2012 Jan;5(1):52-6. PubMed PMID: 22870016; PubMed Central PMCID: PMC3409921.

Jia H, Yu L, Guo X, Gao W, Jiang Z. Associations of adiponectin gene polymorphisms with polycystic ovary syndrome: a meta-analysis. Endocrine. 2012 Oct;42(2):299-306. PubMed PMID: 22270872.

Jones MR, Chua AK, Mengesha EA, Taylor KD, Chen YD, Li X, Krauss RM, Rotter JI; Reproductive Medicine Network, Legro RS, Azziz R, Goodarzi MO. Metabolic and cardiovascular genes in polycystic ovary syndrome: a candidate-wide association study (CWAS). Steroids. 2012 Mar 10;77(4):317-22. PubMed PMID: 22178785.

Kanmaz-Özer M, Vural P, Doğru-Abbasoğlu S, Gedikbaşı A, Çil E, Karadağ B, Uysal M. Polymorphisms of vascular cell adhesion molecule1 (VCAM1) in polycystic ovary syndrome determined by quantitative real-time polymerase chain reaction and melting curve analysis. Eur J Obstet Gynecol Reprod Biol. 2012 Feb;160(2):174-8. PubMed PMID: 22137570.

Li Y, Liu F, Luo S, Hu H, Li XH, Li SW. Polymorphism T→C of gene CYP17 promoter and polycystic ovary syndrome risk: a meta-analysis. Gene. 2012 Mar 1;495(1):16-22. PubMed PMID: 22237020.

Liu B, Lv HM, Li LN, Xia L, Zhang HX, Zhang YJ, Lei L. Common variants of transcription factor 7-like 2 (TCF7L2) are associated with reduced insulin secretion in women with polycystic ovary syndrome. Gynecol Endocrinol. 2012 Aug;28(8):594-7. PubMed PMID: 22296403.

Maier PS, Mattiello SS, Lages L, Spritzer PM. 17-hydroxysteroid dehydrogenase type 5 gene polymorphism (-71A/G HSD17B5 SNP) and treatment with oral contraceptive pills in PCOS women without metabolic comorbidities. Gynecol Endocrinol. 2012 Aug;28(8):606-10. PubMed PMID: 22329763.

Maier PS, Spritzer PM. Aromatase gene polymorphism does not influence clinical phenotype and response to oral contraceptive pills in polycystic ovary syndrome women. Gynecol Obstet Invest. 2012;74(2):136-42. PubMed PMID: 22889864.

Martínez-García MA, San-Millán JL, Escobar-Morreale HF. The R453Q and D151A polymorphisms of hexose-6-phosphate dehydrogenase gene (H6PD) influence the polycystic ovary syndrome (PCOS) and obesity. Gene. 2012 Apr 10;497(1):38-44. PubMed PMID: 22306327.

Mohiyiddeen L, Salim S, Mulugeta B, McBurney H, Newman WG, Pemberton P, Nardo LG. PCOS and peripheral AMH levels in relation to FSH receptor gene single nucleotide polymorphisms. Gynecol Endocrinol. 2012 May;28(5):375-7. PubMed PMID: 22429116.

Nectaria X, Leandros L, Ioannis G, Agathocles T. The importance of ERα and ERβ gene polymorphisms in PCOS. Gynecol Endocrinol. 2012 Jul;28(7):505-8. PubMed PMID: 22296324.

Ramos Cirilo PD, Rosa FE, Moreira Ferraz MF, Rainho CA, Pontes A, Rogatto SR. Genetic polymorphisms associated with steroids metabolism and insulin action in polycystic ovary syndrome. Gynecol Endocrinol. 2012 Mar;28(3):190-4. PubMed PMID: 21824047.

Ranjzad F, Mahmoudi T, Irani Shemirani A, Mahban A, Nikzamir A, Vahedi M, Ashrafi M, Gourabi H. A common variant in the adiponectin gene and polycystic ovary syndrome risk. Mol Biol Rep. 2012 Mar;39(3):2313-9. PubMed PMID: 21637951.

Rashidi B, Azizy L, Najmeddin F, Azizi E. Prevalence of the insulin receptor substrate-1(IRS-1) Gly972Arg and the insulin receptor substrate-2(IRS-2) Gly1057Asp polymorphisms in PCOS patients and non-diabetic healthy women. J Assist Reprod Genet. 2012 Feb;29(2):195-201PubMed PMID: 22205343; PubMed Central PMCID: PMC3270138.

Saxena R, Welt CK. Polycystic ovary syndrome is not associated with genetic variants that mark risk of type 2 diabetes. Acta Diabetol. 2012 Mar 3. PubMed PMID: 22389004.

Schüring AN, Welp A, Gromoll J, Zitzmann M, Sonntag B, Nieschlag E, Greb RR, Kiesel L. Role of the CAG repeat polymorphism of the androgen receptor gene in polycystic ovary syndrome (PCOS). Exp Clin Endocrinol Diabetes. 2012 Feb;120(2):73-9. PubMed PMID: 22068615.

Skrgatic L, Baldani DP, Cerne JZ, Ferk P, Gersak K. CAG repeat polymorphism in androgen receptor gene is not directly associated with polycystic ovary syndrome but influences serum testosterone levels. J Steroid Biochem Mol Biol. 2012 Feb;128(3-5):107-12. PubMed PMID: 22107839.

Wang Y, Liu H, Fan P, Bai H, Zhang J, Zhang F. Evidence for association between paraoxonase 1 gene polymorphisms and polycystic ovarian syndrome in southwest Chinese women. Eur J Endocrinol. 2012 May;166(5):877-85. PubMed PMID: 22301914.

Xia Y, Che Y, Zhang X, Zhang C, Cao Y, Wang W, Xu P, Wu X, Yi L, Gao Q, Wang Y. Polymorphic CAG repeat in the androgen receptor gene in polycystic ovary syndrome patients. Mol Med Report. 2012 May;5(5):1330-4. PubMed PMID: 22344533.

Xian L, He W, Pang F, Hu Y. ADIPOQ gene polymorphisms and susceptibility to polycystic ovary syndrome: a HuGE survey and meta-analysis. Eur J Obstet Gynecol Reprod Biol. 2012 Apr;161(2):117-24. PubMed PMID: 22239938.

Yalamanchi SK, Sam S, Cardenas MO, Holaday LW, Urbanek M, Dunaif A. Association of fibrillin-3 and transcription factor-7-like 2 gene variants with metabolic phenotypes in PCOS. Obesity (Silver Spring). 2012 Jun;20(6):1273-8. PubMed PMID: 22301903; PubMed Central PMCID: PMC3346885.

Zhang B, Zhao H, Li T, Gao X, Gao Q, Tang R, Zhang J, Chen ZJ. Association Study of Gene LPP in Women with Polycystic Ovary Syndrome. PLoS One. 2012;7(10):e46370. PubMed PMID: 23056290.

Zhang XL, Zhang CW, Xu P, Liang FJ, Che YN, Xia YJ, Cao YX, Wu XK, Wang WJ, Yi L, Gao Q, Wang Y. SNP rs2470152 in CYP19 is correlated to aromatase activity in Chinese polycystic ovary syndrome patients. Mol Med Report. 2012 Jan;5(1):245-9. PubMed PMID: 21972004.

Zhao H, Xu X, Xing X, Wang J, He L, Shi Y, Shi Y, Zhao Y, Chen ZJ. Family-based analysis of susceptibility loci for polycystic ovary syndrome on chromosome 2p16.3, 2p21 and 9q33.3. Hum Reprod. 2012 Jan;27(1):294-8. PubMed PMID: 22081247.

PCOS – Immunological Considerations

None.

PCOS – After the Menopause

Beydoun HA, Beydoun MA, Wiggins N, Stadtmauer L. Relationship of obesity-related disturbances with LH/FSH ratio among post-menopausal women in the United States. Maturitas. 2012 Jan;71(1):55-61. PubMed PMID: 22088801; PubMed Central PMCID: PMC3398813.

PCOS – Metabolic Dysfunction/Cardiovascular Disease/Inflammation

Abdel-Rahman MY, Jackson LW, Rodewald KJ, Abdellah MA, Ismail SA, Hurd WW. Polycystic ovary syndrome and diabetes screening: a survey of gynecologists and reproductive endocrinologists. Eur J Obstet Gynecol Reprod Biol. 2012 Jun;162(2):178-81. PubMed PMID: 22464207.

Akbarzadeh S, Ghasemi S, Kalantarhormozi M, Nabipour I, Abbasi F, Aminfar A, Jaffari SM, Motamed N, Movahed A, Mirzaei M, Rahbar AR. Relationship among plasma adipokines, insulin and androgens level as well as biochemical glycemic and lipidemic markers with incidence of PCOS in women with normal BMI. Gynecol Endocrinol. 2012 Jul;28(7):521-4. PubMed PMID: 22309615.

Altieri P, Cavazza C, Pasqui F, Morselli AM, Gambineri A, Pasquali R. Dietary habits and their relationship with hormones and metabolism in overweight and obese women with polycystic ovary syndrome. Clin Endocrinol (Oxf). 2012 Jan 30. PubMed PMID: 22288821.

Amador RR, Longo JP, Lacava ZG, Dórea JG, Almeida Santos Mde F. Metformin (dimethyl-biguanide) induced DNA damage in mammalian cells. Genet Mol Biol. 2012 Jan;35(1):153-8. PubMed PMID: 22481889; PubMed Central PMCID: PMC3313505.

Anwary SA, Alfazzaman M, Bari N, Islam MR. Outcome of metformin treatment in polycystic ovary syndrome. Mymensingh Med J. 2012 Jan;21(1):60-5. PubMed PMID: 22314456.

Ardabili HR, Gargari BP, Farzadi L. Vitamin D supplementation has no effect on insulin resistance assessment in women with polycystic ovary syndrome and vitamin D deficiency. Nutr Res. 2012 Mar;32(3):195-201. PubMed PMID: 22464806.

Armanini D, Bordin L, Donà G, Sabbadin C, Bakdounes L, Ragazzi E, Giorgino FL, Fiore C. Polycystic ovary syndrome: Implications of measurement of plasma aldosterone, renin activity and progesterone. Steroids. 2012 May;77(6):655-8. PubMed PMID: 22387621.

Asadipooya K, Kalantar-Hormozi M, Nabipour I. Pioglitazone reduces central obesity in polycystic ovary syndrome women. Gynecol Endocrinol. 2012 Jan;28(1):16-9. PubMed PMID: 21756079.

Aydogdu A, Tasci I, Tapan S, Basaran Y, Aydogan U, Meric C, Sonmez A, Aydogdu S, Akbulut H, Taslipinar A, Uckaya G, Azal O. High plasma level of long Pentraxin 3 is associated with insulin resistance in women with polycystic ovary syndrome. Gynecol Endocrinol. 2012 Sep;28(9):722-5. PubMed PMID: 22304663.

Aydogdu A, Uckaya G, Tasci I, Baysan O, Tapan S, Bugan B, Serdar M, Akbulut H, Aydogan U, Sonmez A, Aydogdu S, Kutlu M. The relationship of epicardial adipose tissue thickness to clinical and biochemical features in women with polycystic ovary syndrome. Endocr J. 2012 Jun 30;59(6):509-16. PubMed PMID: 22447143.

Aziz M, Naver KV, Wissing ML, Mikkelsen AL, Nilas L, Skouby SO. Polycystic ovary syndrome: infertility, cardiovascular, metabolic and obstetrical risks, laboratory and clinical outcomes -- the PICOLO Study. Gynecol Endocrinol. 2012 Apr;28(4):253-8PubMed PMID: 22217188.

Baskol G, Aygen E, Erdem F, Caniklioğlu A, Narin F, Sahin Y, Kaya T. Assessment of paraoxonase 1, xanthine oxidase and glutathione peroxidase activities, nitric oxide and thiol levels in women with polycystic ovary syndrome. Acta Obstet Gynecol Scand. 2012 Mar;91(3):326-30. PubMed PMID: 22168506.

Batista JG, Soares-Jr JM, Maganhin CC, Simões RS, Tomaz G, Baracat EC. Assessing the benefits of rosiglitazone in women with polycystic ovary syndrome through its effects on insulin-like growth factor 1, insulin-like growth factor-binding protein-3 and insulin resistance: a pilot study. Clinics (Sao Paulo). 2012;67(3):283-7. PubMed PMID: 22473412; PubMed Central PMCID: PMC3297040.

Beller JP, McCartney CR. Cardiovascular risk and combined oral contraceptives: clinical decisions in settings of uncertainty. Am J Obstet Gynecol. 2012 Feb 1. PubMed PMID: 22360920.

Bhattacharya SM, Ghosh M, Basu R. Effects of ethinyl estradiol and desogestrel on clinical and metabolic parameters in Indian patients with polycystic ovary syndrome. J Obstet Gynaecol Res. 2012 Jan;38(1):285-90. PubMed PMID: 22070369.

Bu Z, Kuok K, Meng J, Wang R, Xu B, Zhang H. The relationship between polycystic ovary syndrome, glucose tolerance status and serum preptin level. Reprod Biol Endocrinol. 2012 Feb 6;10:10. PubMed PMID: 22309801; PubMed Central PMCID: PMC3395817.

Chazenbalk G, Chen YH, Heneidi S, Lee JM, Pall M, Chen YD, Azziz R. Abnormal expression of genes involved in inflammation, lipid metabolism, and Wnt signaling in the adipose tissue of polycystic ovary syndrome. J Clin Endocrinol Metab. 2012 May;97(5):E765-70. PubMed PMID: 22344199; PubMed Central PMCID: PMC3339894.

Comerford KB, Almario RU, Kim K, Karakas SE. Lean mass and insulin resistance in women with polycystic ovary syndrome. Metabolism. 2012 Sep;61(9):1256-60. PubMed PMID: 22424820.

Curi DD, Fonseca AM, Marcondes JA, Almeida JA, Bagnoli VR, Soares JM Jr, Baracat EC. Metformin versus lifestyle changes in treating women with polycystic ovary syndrome. Gynecol Endocrinol. 2012 Mar;28(3):182-5. PubMed PMID: 22309675.

Deniz R, Gurates B, Aydin S, Celik H, Sahin I, Baykus Y, Catak Z, Aksoy A, Citil C, Gungor S. Nesfatin-1 and other hormone alterations in polycystic ovary syndrome. Endocrine. 2012 Feb 25. PubMed PMID: 22367584.

Dogan MI, Tasci I, Bulucu F, Aydogdu A, Acar R, Ceyhan T, Koc B, Demir O, Gezer M, Saglam K. Abdominal Obesity is Associated With a Lower Ankle-Brachial Index in Women With Polycystic Ovary Syndrome. Angiology. 2012 Feb 21. PubMed PMID: 22355193.

Donà G, Sabbadin C, Fiore C, Bragadin M, Giorgino FL, Ragazzi E, Clari G, Bordin L, Armanini D. Inositol administration reduces oxidative stress in erythrocytes of patients with polycystic ovary syndrome. Eur J Endocrinol. 2012 Apr;166(4):703-10. PubMed PMID: 22223702.

Duleba AJ. Medical management of metabolic dysfunction in PCOS. Steroids. 2012 Mar 10;77(4):306-11.. PubMed PMID: 22182833; PubMed Central PMCID: PMC3409585.

Duleba AJ, Dokras A. Is PCOS an inflammatory process? Fertil Steril. 2012 Jan;97(1):7-12. PubMed PMID: 22192135; PubMed Central PMCID: PMC3245829.

Ehrmann DA. Metabolic dysfunction in PCOS: Relationship to obstructive sleep apnea. Steroids. 2012 Mar 10;77(4):290-4. PubMed PMID: 22178788; PubMed Central PMCID: PMC3279609.

Escobar-Morreale HF. Surgical management of metabolic dysfunction in PCOS. Steroids. 2012 Mar 10;77(4):312-6. PubMed PMID: 22172592.

Eryılmaz ÖG, Kara M, Tiftik T, Aksakal FN, Uzunlar Ö, Su FA, Mollamahmutoğlu L, Özçakar L. Ultrasonographic measurement of the femoral cartilage thickness in patients with polycystic ovary syndrome. Fertil Steril. 2012 Jan;97(1):235-7. PubMed PMID: 22100168.

Escobar-Morreale HF, Samino S, Insenser M, Vinaixa M, Luque-Ramírez M, Lasunción MA, Correig X. Metabolic heterogeneity in polycystic ovary syndrome is determined by obesity: plasma metabolomic approach using GC-MS. Clin Chem. 2012 Jun;58(6):999-1009. PubMed PMID: 22427353.

Fan P, Liu H, Wang Y, Zhang F, Bai H. Apolipoprotein E-containing HDL-associated platelet-activating factor acetylhydrolase activities and malondialdehyde concentrations in patients with PCOS. Reprod Biomed Online. 2012 Feb;24(2):197-205. PubMed PMID: 22197603.

Firouzabadi Rd, Aflatoonian A, Modarresi S, Sekhavat L, MohammadTaheri S. Therapeutic effects of calcium & vitamin D supplementation in women with PCOS. Complement Ther Clin Pract. 2012 May;18(2):85-8. PubMed PMID: 22500844.

Galazis N, Iacovou C, Haoula Z, Atiomo W. Metabolomic biomarkers of impaired glucose tolerance and type 2 diabetes mellitus with a potential for risk stratification in women with polycystic ovary syndrome. Eur J Obstet Gynecol Reprod Biol. 2012 Feb;160(2):121-30. PubMed PMID: 22136882.

Ganie MA, Farooqui KJ, Bhat MA, Mir MM, Shah ZA, Douhath S, Mir SH, Rashid F, Naqshi S, Masoodi MI, Zargar SA, Zargar AH. Pattern of urinary albumin excretion in normotensive young and adolescent Indian women with polycystic ovary syndrome. Indian J Endocrinol Metab. 2012 Mar;16(2):277-82. PubMed PMID: 22470868; PubMed Central PMCID: PMC3313749

Gateva A, Kamenov Z. Cardiovascular Risk Factors in Bulgarian Patients with Polycystic Ovary Syndrome and/or Obesity. Obstet Gynecol Int. 2012;2012:306347. PubMed PMID: 22262974; PubMed Central PMCID: PMC3259489.

González F. Inflammation in Polycystic Ovary Syndrome: underpinning of insulin resistance and ovarian dysfunction. Steroids. 2012 Mar 10;77(4):300-5. PubMed PMID: 22178787; PubMed Central PMCID: PMC3309040.

González F, Kirwan JP, Rote NS, Minium J. Elevated Circulating Levels of Tissue Factor in Polycystic Ovary Syndrome. Clin Appl Thromb Hemost. 2012 Feb 12. PubMed PMID: 22327820.

González F, Nair KS, Daniels JK, Basal E, Schimke JM. Hyperandrogenism sensitizes mononuclear cells to promote glucose-induced inflammation in lean reproductive-age women. Am J Physiol Endocrinol Metab. 2012 Feb 1;302(3):E297-306. PubMed PMID: 22045316; PubMed Central PMCID: PMC3287360.

Güdücü N, Işçi H, Görmüş U, Yiğiter AB, Dünder I. Serum visfatin levels in women with polycystic ovary syndrome. Gynecol Endocrinol. 2012 Aug;28(8):619-23. PubMed PMID: 22313145.

Haviland JA, Tonelli M, Haughey DT, Porter WP, Assadi-Porter FM. Novel diagnostics of metabolic dysfunction detected in breath and plasma by selective isotope-assisted labeling. Metabolism. 2012 Aug;61(8):1162-70. PubMed PMID: 22304834; PubMed Central PMCID: PMC3346854.

Hernández-Yero A, Santana Pérez F, Ovies Carballo G, Cabrera-Rode E. Diamel therapy in polycystic ovary syndrome reduces hyperinsulinaemia, insulin resistance, and hyperandrogenaemia. Int J Endocrinol. 2012;2012:382719. PubMed PMID: 22778733; PubMed Central PMCID: PMC3388435.

Hoeger KM, Oberfield SE. Do women with PCOS have a unique predisposition to obesity? Fertil Steril. 2012 Jan;97(1):13-7. PubMed PMID: 22192136.

Hutchison SK, Teede HJ, Rachoń D, Harrison CL, Strauss BJ, Stepto NK. Effect of exercise training on insulin sensitivity, mitochondria and computed tomography muscle attenuation in overweight women with and without polycystic ovary syndrome. Diabetologia. 2012 May;55(5):1424-34. PubMed PMID: 22246378.

Iftikhar S, Collazo-Clavell ML, Roger VL, St Sauver J, Brown RD Jr, Cha S, Rhodes DJ. Risk of cardiovascular events in patients with polycystic ovary syndrome. Neth J Med. 2012 Mar;70(2):74-80. PubMed PMID: 22418753.

Jakubowicz D, Froy O, Wainstein J, Boaz M. Meal timing and composition influence ghrelin levels, appetite scores and weight loss maintenance in overweight and obese adults. Steroids. 2012 Mar 10:77(4):323-331. Erratum in: Steroids. 2012 Jul;77(8-9):887-9. PubMed PMID: 22178258.

Karabulut A, Yaylali GF, Demirlenk S, Sevket O, Acun A. Evaluation of body fat distribution in PCOS and its association with carotid atherosclerosis and insulin resistance. Gynecol Endocrinol. 2012 Feb;28(2):111-4. PubMed PMID: 21770828.

Kim JJ, Choi YM, Cho YM, Jung HS, Chae SJ, Hwang KR, Hwang SS, Ku SY, Kim SH, Kim JG, Moon SY. Prevalence of elevated glycated hemoglobin in women with polycystic ovary syndrome. Hum Reprod. 2012 May;27(5):1439-44. PubMed PMID: 22357766.

Kim JW, Lee MH, Park JE, Yoon TK, Lee WS, Shim SH. Association of IL-18 genotype with impaired glucose regulation in Korean women with polycystic ovary syndrome. Eur J Obstet Gynecol Reprod Biol. 2012 Mar;161(1):51-5. PubMed PMID: 22226490.

Knebel B, Janssen OE, Hahn S, Jacob S, Nitzgen U, Haas J, Muller-Wieland D, Kotzka J. Genetic variations in SREBP-1 and LXRα are not directly associated to PCOS but contribute to the physiological specifics of the syndrome. Mol Biol Rep. 2012 Jun;39(6):6835-42. PubMed PMID: 22311022.

Koika V, Georgopoulos NA, Piouka A, Roupas ND, Karela A, Armeni AK, Katsantoni E, Panidis D. Increased frequency of the DI genotype of the angiotensin-I converting enzyme and association of the II genotype with insulin resistance in polycystic ovary syndrome. Eur J Endocrinol. 2012 Apr;166(4):695-702. PubMed PMID: 22223701.

Koiou E, Tziomalos K, Katsikis I, Kandaraki EA, Kalaitzakis E, Delkos D, Vosnakis C, Panidis D. Weight loss significantly reduces serum lipocalin-2 levels in overweight and obese women with polycystic ovary syndrome. Gynecol Endocrinol. 2012 Jan;28(1):20-4. PubMed PMID: 21756081.

Kurdoglu Z, Ozkol H, Kurdoglu M. Serum myeloperoxidase and adenosine deaminase activities in polycystic ovary syndrome. Gynecol Endocrinol. 2012 Feb;28(2):115-8. PubMed PMID: 21756068.

Kurdoglu Z, Ozkol H, Tuluce Y, Koyuncu I. Oxidative status and its relation with insulin resistance in young non-obese women with polycystic ovary syndrome. J Endocrinol Invest. 2012 Mar;35(3):317-21. PubMed PMID: 21521935.

Lajunen TK, Purhonen AK, Haapea M, Ruokonen A, Puukka K, Hartikainen AL, Savolainen MJ, Morin-Papunen L, Tapanainen JS, Franks S, Järvelin MR, Herzig KH. Full-length visfatin levels are associated with inflammation in women with polycystic ovary syndrome. Eur J Clin Invest. 2012 Mar;42(3):321-8. PubMed PMID: 21913913.

Lerchbaum E, Giuliani A, Gruber HJ, Pieber TR, Obermayer-Pietsch B. Adult-type hypolactasia and calcium intake in polycystic ovary syndrome. Clin Endocrinol (Oxf). 2012 Jan 10. PubMed PMID: 22233423

Lerchbaum E, Obermayer-Pietsch B. Vitamin D and fertility: a systematic review. Eur J Endocrinol. 2012 May;166(5):765-78. PubMed PMID: 22275473.

Li W, Ma L, Li Q. Insulin resistance but not impaired β-cell function: a key feature in Chinese normal-weight PCOS women with normal glucose regulation. Gynecol Endocrinol. 2012 Aug;28(8):598-601. PubMed PMID: 22309514.

Lungu AO, Zadeh ES, Goodling A, Cochran E, Gorden P. Insulin resistance is a sufficient basis for hyperandrogenism in lipodystrophic women with polycystic ovarian syndrome. J Clin Endocrinol Metab. 2012 Feb;97(2):563-7. PubMed PMID: 22090274; PubMed Central PMCID: PMC3275358.

Mandrelle K, Kamath MS, Bondu DJ, Chandy A, Aleyamma T, George K. Prevalence of metabolic syndrome in women with polycystic ovary syndrome attending an infertility clinic in a tertiary care hospital in south India. J Hum Reprod Sci. 2012 Jan;5(1):26-31. PubMed PMID: 22870011; PubMed Central PMCID: PMC3409916.

Marshall JC, Dunaif A. Should all women with PCOS be treated for insulin resistance? Fertil Steril. 2012 Jan;97(1):18-22. PubMed PMID: 22192137; PubMed Central PMCID: PMC3277302.

Mazloomi S, Sharifi F, Hajihosseini R, Kalantari S, Mazloomzadeh S. Association between Hypoadiponectinemia and Low Serum Concentrations of Calcium and Vitamin D in Women with Polycystic Ovary Syndrome. ISRN Endocrinol. 2012;2012:949427. PubMed PMID: 22363895; PubMed Central PMCID: PMC3265215.

Mellati AA, Sharifi F, Sajadinejad M, Sohrabi D, Mazloomzadeh S. The relationship between retinol-binding protein 4 levels, insulin resistance, androgen hormones and polycystic ovary syndrome. Scand J Clin Lab Invest. 2012 Feb;72(1):39-44. PubMed PMID: 22023042.

Meyer ML, Malek AM, Wild RA, Korytkowski MT, Talbott EO. Carotid artery intima-media thickness in polycystic ovary syndrome: a systematic review and meta-analysis. Hum Reprod Update. 2012 Mar-Apr;18(2):112-26. PubMed PMID: 22108382; PubMed Central PMCID: PMC3383099.

Moghetti P. For what reasons should metformin be used in the management of polycystic ovary syndrome? J Endocrinol Invest. 2012 Jan;35(1):87-9. PubMed PMID: 22189518.

Mohammadi E, Rafraf M, Farzadi L, Asghari-Jafarabadi M, Sabour S. Effects of omega-3 fatty acids supplementation on serum adiponectin levels and some metabolic risk factors in women with polycystic ovary syndrome. Asia Pac J Clin Nutr. 2012;21(4):511-8. PubMed PMID: 23017309.

Mokhlesi B, Scoccia B, Mazzone T, Sam S. Risk of obstructive sleep apnea in obese and nonobese women with polycystic ovary syndrome and healthy reproductively normal women. Fertil Steril. 2012 Mar;97(3):786-91. PubMed PMID: 22264851; PubMed Central PMCID: PMC3292664.

Motta AB. The role of obesity in the development of polycystic ovary syndrome. Curr Pharm Des. 2012;18(17):2482-91. PubMed PMID: 22376149.

Muscogiuri G, Policola C, Prioletta A, Sorice G, Mezza T, Lassandro A, Della Casa S, Pontecorvi A, Giaccari A. Low levels of 25(OH)D and insulin-resistance: 2 unrelated features or a cause-effect in PCOS? Clin Nutr. 2012 Aug;31(4):476-80. PubMed PMID: 22260937.

Nair S, Al-Hendy A, Tamboli RA, Marks-Shulman PA, Abumrad NN. Increased COMT expression in PCOS biology. Mol Cell Endocrinol. 2012 May 15;355(1):188-9. PubMed PMID: 22342814.

Nakatsuka M. Response to comment on 'Increased arterial stiffness in mildly-hypertensive women with polycystic ovary syndrome'. J Obstet Gynaecol Res. 2012 Mar;38(3):613. PubMed PMID: 22353191.

Olszanecka-Glinianowicz M, Madej P, Zdun D, Bożentowicz-Wikarek M, Sikora J, Chudek J, Skałba P. Are plasma levels of visfatin and retinol-binding protein 4 (RBP4) associated with body mass, metabolic and hormonal disturbances in women with polycystic ovary syndrome? Eur J Obstet Gynecol Reprod Biol. 2012 May;162(1):55-61. PubMed PMID: 22397743.

Palin MF, Bordignon VV, Murphy BD. Adiponectin and the control of female reproductive functions. Vitam Horm. 2012;90:239-87. PubMed PMID: 23017719.

Pepene CE. Evidence for visfatin as an independent predictor of endothelial dysfunction in polycystic ovary syndrome. Clin Endocrinol (Oxf). 2012 Jan;76(1):119-25. PubMed PMID: 21740456.

Pepene CE. Soluble platelet/endothelial cell adhesion molecule (sPECAM)-1 is increased in polycystic ovary syndrome and related to endothelial dysfunction. Gynecol Endocrinol. 2012 May;28(5):370-4. PubMed PMID: 22456311.

Rahimi-Ardabili H, Pourghassem Gargari B, Farzadi L. Effects of vitamin D on cardiovascular disease risk factors in polycystic ovary syndrome women with vitamin D deficiency. J Endocrinol Invest. 2012 Mar 22. PubMed PMID: 22453059.

Ribeiro AL, Scapinelli A, Tamanaha S, Oliveira RM, Kowastch I, Mathias W Jr, Aoki T, Aldrighi JM. Myeloperoxidases and polycystic ovary syndrome. Gynecol Endocrinol. 2012 Jan;28(1):3-6. PubMed PMID: 21615238.

Rivero R, Garin CA, Ormazabal P, Silva A, Carvajal R, Gabler F, Romero C, Vega M. Protein expression of PKCZ (Protein Kinase C Zeta), Munc18c, and Syntaxin-4 in the insulin pathway in endometria of patients with polycystic ovary syndrome (PCOS). Reprod Biol Endocrinol. 2012 Mar 5;10:17. PubMed PMID: 22390153; PubMed Central PMCID: PMC3317829.

Sathyapalan T, Smith KA, Coady AM, Kilpatrick ES, Atkin SL. Atorvastatin therapy decreases androstenedione and dehydroepiandrosterone sulphate concentrations in patients with polycystic ovary syndrome: randomized controlled study. Ann Clin Biochem. 2012 Jan;49(Pt 1):80-5. PubMed PMID: 21972424.

Seow KM, Juan CC, Wang PH, Ho LT, Hwang JL. Expression levels of vascular cell adhesion molecule-1 in young and nonobese women with polycystic ovary syndrome. Gynecol Obstet Invest. 2012;73(3):236-41. PubMed PMID: 22441212.

Sharifi F, Mazloomi S, Hajihosseini R, Mazloomzadeh S. Serum magnesium concentrations in polycystic ovary syndrome and its association with insulin resistance. Gynecol Endocrinol. 2012 Jan;28(1):7-11. PubMed PMID: 21696337.

Shibata H, Itoh H. Mineralocorticoid receptor-associated hypertension and its organ damage: clinical relevance for resistant hypertension. Am J Hypertens. 2012 May;25(5):514-23. PubMed PMID: 22258336.

Sirmans SM, Weidman-Evans E, Everton V, Thompson D. Polycystic ovary syndrome and chronic inflammation: pharmacotherapeutic implications. Ann Pharmacother. 2012 Mar;46(3):403-18. PubMed PMID: 22388330.

Sørensen LB, Søe M, Halkier KH, Stigsby B, Astrup A. Effects of increased dietary protein-to-carbohydrate ratios in women with polycystic ovary syndrome. Am J Clin Nutr. 2012 Jan;95(1):39-48. PubMed PMID: 22158730.

Spanos N, Tziomalos K, Macut D, Koiou E, Kandaraki EA, Delkos D, Tsourdi E, Panidis D. Adipokines, insulin resistance and hyperandrogenemia in obese patients with polycystic ovary syndrome: cross-sectional correlations and the effects of weight loss. Obes Facts. 2012;5(4):495-504. PubMed PMID: 22854419.

Stener-Victorin E, Baghaei F, Holm G, Janson PO, Olivecrona G, Lönn M, Mannerås-Holm L. Effects of acupuncture and exercise on insulin sensitivity, adipose tissue characteristics, and markers of coagulation and fibrinolysis in women with polycystic ovary syndrome: secondary analyses of a randomized controlled trial. Fertil Steril. 2012 Feb;97(2):501-8. PubMed PMID: 22154367.

Unfer V, Carlomagno G, Dante G, Facchinetti F. Effects of myo-inositol in women with PCOS: a systematic review of randomized controlled trials. Gynecol Endocrinol. 2012 Jul;28(7):509-15. PubMed PMID: 22296306.

Viollet B, Guigas B, Sanz Garcia N, Leclerc J, Foretz M, Andreelli F. Cellular and molecular mechanisms of metformin: an overview. Clin Sci (Lond). 2012 Mar;122(6):253-70. PubMed PMID: 22117616; PubMed Central PMCID: PMC3398862.

Wang L, Li S, Zhao A, Tao T, Mao X, Zhang P, Liu W. The expression of sex steroid synthesis and inactivation enzymes in subcutaneous adipose tissue of PCOS patients. J Steroid Biochem Mol Biol. 2012 Oct;132(1-2):120-6. PubMed PMID: 22381227.

Wei W, Zhao H, Wang A, Sui M, Liang K, Deng H, Ma Y, Zhang Y, Zhang H, Guan Y. A clinical study on the short-term effect of berberine in comparison to metformin on the metabolic characteristics of women with polycystic ovary syndrome. Eur J Endocrinol. 2012 Jan;166(1):99-105. PubMed PMID: 22019891.

Weickert MO. Improved gall bladder motility in PCOS women treated with metformin--interaction of free fatty acids with circulating cholecystokinin? Clin Endocrinol (Oxf). 2012 Mar;76(3):454-5. PubMed PMID: 21913952.

Wild RA. Dyslipidemia in PCOS. Steroids. 2012 Mar 10;77(4):295-9. PubMed PMID: 22197663.

Williams S, Cunningham E, Pories WJ. Surgical treatment of metabolic syndrome. Med Princ Pract. 2012;21(4):301-9. PubMed PMID: 22222561.

Wongwananuruk T, Rattanachaiyanont M, Indhavivadhana S, Leerasiri P, Techatraisak K, Tanmahasamut P, Angsuwathana S, Dangrat C. Prevalence and clinical predictors of insulin resistance in reproductive-aged thai women with polycystic ovary syndrome. Int J Endocrinol. 2012;2012:529184. PubMed PMID: 22287962; PubMed Central PMCID: PMC3263625.

Wongwananuruk T, Rattanachaiyanont M, Leerasiri P, Indhavivadhana S, Techatraisak K, Angsuwathana S, Tanmahasamut P, Dangrat C. The Usefulness of Homeostatic Measurement Assessment-Insulin Resistance (HOMA-IR) for Detection of Glucose Intolerance in Thai Women of Reproductive Age with Polycystic Ovary Syndrome. Int J Endocrinol. 2012;2012:571035. PubMed PMID: 22737168; PubMed Central PMCID: PMC3378956.

Xiang SK, Hua F, Tang Y, Jiang XH, Zhuang Q, Qian FJ. Relationship between Serum Lipoprotein Ratios and Insulin Resistance in Polycystic Ovary Syndrome. Int J Endocrinol. 2012;2012:173281. PubMed PMID: 22792101; PubMed Central PMCID: PMC3389691.

Zhang Z, Gong F, Lu GX. Plasma level of calcitonin gene-related peptide in patients with polycystic ovary syndrome and its relationship to hormonal and metabolic parameters. Peptides. 2012 Apr;34(2):343-8. PubMed PMID: 22314079.

Zhou N, Li W. Increased arterial stiffness in mildly-hypertensive women with polycystic ovary syndrome. J Obstet Gynaecol Res. 2012 Jan;38(1):349. PubMed PMID: 22136153.

Ziaee A, Oveisi S, Abedini A, Hashemipour S, Karimzadeh T, Ghorbani A. Effect of metformin and pioglitazone treatment on cardiovascular risk profile in polycystic ovary syndrome. Acta Med Indones. 2012 Jan;44(1):16-22. PubMed PMID: 22451180.

PCOS – Neuroendocrine Dysfunction

Burt Solorzano CM, Beller JP, Abshire MY, Collins JS, McCartney CR, Marshall JC. Neuroendocrine dysfunction in polycystic ovary syndrome. Steroids. 2012 Mar 10;77(4):332-7. PubMed PMID: 22172593; PubMed Central PMCID: PMC3453528.

Evans JJ, Anderson GM. Balancing ovulation and anovulation: integration of the reproductive and energy balance axes by neuropeptides. Hum Reprod Update. 2012 May-Jun;18(3):313-32. PubMed PMID: 22442260.

Krepuła K, Bidzińska-Speichert B, Lenarcik A, Tworowska-Bardzińska U. Selected neurologic disorders related to polycystic ovary syndrome. Ginekol Pol. 2012 Feb;83(2):128-31. PubMed PMID: 22568358.

Weickert MO, Hodges P, Tan BK, Randeva HS. Neuroendocrine and endocrine dysfunction in the hyperinsulinemic PCOS patient: the role of metformin. Minerva Endocrinol. 2012 Mar;37(1):25-40. PubMed PMID: 22382613.

PCOS – Ovary

Abu Hashim H. Clomiphene citrate alternatives for the initial management of polycystic ovary syndrome: an evidence-based approach. Arch Gynecol Obstet. 2012 Jun;285(6):1737-45. PubMed PMID: 22392485.

Abu Hashim H, Bazeed M, Abd Elaal I. Minimal stimulation or clomiphene citrate as first-line therapy in women with polycystic ovary syndrome: a randomized controlled trial. Gynecol Endocrinol. 2012 Feb;28(2):87-90. PubMed PMID: 21770837.

Arya BK, Haq AU, Chaudhury K. Oocyte quality reflected by follicular fluid analysis in poly cystic ovary syndrome (PCOS): a hypothesis based on intermediates of energy metabolism. Med Hypotheses. 2012 Apr;78(4):475-8. PubMed PMID: 22336088.

Banerjee Ray P, Ray A, Chakraborti PS. Comparison of efficacy of letrozole and clomiphene citrate in ovulation induction in Indian women with polycystic ovarian syndrome. Arch Gynecol Obstet. 2012 Mar;285(3):873-7.. PubMed PMID: 21984038.

Bhagavath B, Carson SA. Ovulation induction in women with polycystic ovary syndrome: an update. Am J Obstet Gynecol. 2012 Mar;206(3):195-8. PubMed PMID: 21831351.

Chao KC, Ho CH, Shyong WY, Huang CY, Tsai SC, Cheng HY, Chou LC, Lin CH, Li HY. Anti-Mullerian hormone serum level as a predictive marker of ovarian function in Taiwanese women. J Chin Med Assoc. 2012 Feb;75(2):70-4. PubMed PMID: 22340740.

Chen H, Guo JH, Lu YC, Ding GL, Yu MK, Tsang LL, Fok KL, Liu XM, Zhang XH, Chung YW, Huang P, Huang H, Chan HC. Impaired CFTR-dependent amplification of FSH-stimulated estrogen production in cystic fibrosis and PCOS. J Clin Endocrinol Metab. 2012 Mar;97(3):923-32 PubMed PMID: 22170719.

Dasgupta S, Sirisha PV, Neelaveni K, Anuradha K, Sudhakar G, Reddy BM. Role of luteinizing hormone β-subunit gene variants among South Indian women with polycystic ovary syndrome. Gene. 2012 Feb 15;494(1):51-6. PubMed PMID: 22209983.

Di Carlo C, Savoia F, Ferrara C, Tommaselli GA, Bifulco G, Nappi C. Case report: a most peculiar family with spontaneous, recurrent ovarian hyperstimulation syndrome. Gynecol Endocrinol. 2012 Aug;28(8):649-51. PubMed PMID: 22313155.

Franasiak J, Young SL, Williams CD, Pastore LM. Longitudinal anti-müllerian hormone in women with polycystic ovary syndrome: an acupuncture randomized clinical trial. Evid Based Complement Alternat Med. 2012;2012:973712. PubMed PMID: 22966246; PubMed Central PMCID: PMC3433176.

Guzman L, Ortega-Hrepich C, Albuz FK, Verheyen G, Devroey P, Smitz J, De Vos M. Developmental capacity of in vitro-matured human oocytes retrieved from polycystic ovary syndrome ovaries containing no follicles larger than 6 mm. Fertil Steril. 2012 Aug;98(2):503-7.e1-2. PubMed PMID: 22365339.

Harlow SD, Gass M, Hall JE, Lobo R, Maki P, Rebar RW, Sherman S, Sluss PM, de Villiers TJ; STRAW + 10 Collaborative Group. Executive summary of the Stages of Reproductive Aging Workshop + 10: addressing the unfinished agenda of staging reproductive aging. Fertil Steril. 2012 Apr;97(4):843-51. PubMed PMID: 22341880; PubMed Central PMCID: PMC3340904.

Homburg R, Hendriks ML, König TE, Anderson RA, Balen AH, Brincat M, Child T, Davies M, D'Hooghe T, Martinez A, Rajkhowa M, Rueda-Saenz R, Hompes P, Lambalk CB. Clomifene citrate or low-dose FSH for the first-line treatment of infertile women with anovulation associated with polycystic ovary syndrome: a prospective randomized multinational study. Hum Reprod. 2012 Feb;27(2):468-73. PubMed PMID: 22128296.

Karjane NW, Cheang KI, Mandolesi GA, Stovall DW. Persistence with oral contraceptive pills versus metformin in women with polycystic ovary syndrome. J Womens Health (Larchmt). 2012 Jun;21(6):690-4. PubMed PMID: 22324645.

Kim CH, Moon JW, Kang HJ, Ahn JW, Kim SH, Chae HD, Kang BM. Effectiveness of GnRH antagonist multiple dose protocol applied during early and late follicular phase compared with GnRH agonist long protocol in non-obese and obese patients with polycystic ovary syndrome undergoing IVF/ICSI. Clin Exp Reprod Med. 2012 Mar;39(1):22-7. PubMed PMID: 22563547; PubMed Central PMCID: PMC3341448.

Köşüş A, Köşüş N, Duran M, Turhan NO. Does assisted reproductive technology itself or polycystic ovary syndrome as a cause of infertility have any effect on first trimester serum screening results? J Reprod Med. 2012 Mar-Apr;57(3-4):129-35. PubMed PMID: 22523872.

Kuivasaari-Pirinen P, Raatikainen K, Hippeläinen M, Heinonen S. Adverse Outcomes of IVF/ICSI Pregnancies Vary Depending on Aetiology of Infertility. ISRN Obstet Gynecol. 2012;2012:451915. PubMed PMID: 22570795; PubMed Central PMCID: PMC3337484.

Ma C, Wang Y, Li TC, Qiao J, Yang Y, Song X, Yang S. Trans-abdominal ultrasound guided transvaginal hydrolaparoscopy is associated with reduced complication rate. Eur J Obstet Gynecol Reprod Biol. 2012 Feb;160(2):166-9. PubMed PMID: 22289262.

McFarland C. Treating polycystic ovary syndrome and infertility. MCN Am J Matern Child Nurs. 2012 Mar-Apr;37(2):116-21. PubMed PMID: 22357073.

Mehrabian F, Eessaei F. The laparoscopic ovarian electrocautery versus gonadotropin therapy in infertile women with clomiphene citrate-resistant polycystic ovary syndrome; a randomized controlled trial. J Pak Med Assoc. 2012 Mar;62(3 Suppl 2):S42-4. PubMed PMID: 22768457.

Misso ML, Wong JL, Teede HJ, Hart R, Rombauts L, Melder AM, Norman RJ, Costello MF. Aromatase inhibitors for PCOS: a systematic review and meta-analysis. Hum Reprod Update. 2012 May-Jun;18(3):301-12. PubMed PMID: 22431566.

Moncayo R, Moncayo H. Inadequate description of an acupuncture treatment study for polycystic ovaries. Fertil Steril. 2012 May;97(5):e20; author reply e21. PubMed PMID: 22445321.

Orvieto R, Meltcer S, Liberty G, Rabinson J, Anteby EY, Nahum R. Does day-3 LH/FSH ratio influence in vitro fertilization outcome in PCOS patients undergoing controlled ovarian hyperstimulation with different GnRH-analogue? Gynecol Endocrinol. 2012 Jun;28(6):422-4. PubMed PMID: 22578028.

Ott J, Wattar L, Kurz C, Seemann R, Huber JC, Mayerhofer K, Vytiska-Binstorfer E. Parameters for calcium metabolism in women with polycystic ovary syndrome who undergo clomiphene citrate stimulation: a prospective cohort study. Eur J Endocrinol. 2012 May;166(5):897-902. PubMed PMID: 22330149.

Palomba S, Falbo A, Russo T, Di Cello A, Morelli M, Orio F, Cappiello F, Tolino A, Zullo F. Metformin administration in patients with polycystic ovary syndrome who receive gonadotropins for in vitro fertilization cycles: 10-year experience in a large infertile population. Gynecol Endocrinol. 2012 Feb;28(2):81-6. PubMed PMID: 21770836.

Pundir J, Sunkara SK, El-Toukhy T, Khalaf Y. Meta-analysis of GnRH antagonist protocols: do they reduce the risk of OHSS in PCOS? Reprod Biomed Online. 2012 Jan;24(1):6-22. PubMed PMID: 22133908.

Purcell SH, Chi MM, Moley KH. Insulin-stimulated glucose uptake occurs in specialized cells within the cumulus oocyte complex. Endocrinology. 2012 May;153(5):2444-54. PubMed PMID: 22408172; PubMed Central PMCID: PMC3339650.

Rahmani E, Ahmadi S, Motamed N, Maneshi HO. Dosage optimization for letrozole treatment in clomiphene-resistant patients with polycystic ovary syndrome: a prospective interventional study. Obstet Gynecol Int. 2012;2012:758508. PubMed PMID: 22291712; PubMed Central PMCID: PMC3265112.

Roesner S, Von Wolff M, Eberhardt I, Beuter-Winkler P, Toth B, Strowitzki T. In vitro maturation: a five-year experience. Acta Obstet Gynecol Scand. 2012 Jan;91(1):22-7. Epub 2011 Nov 9. PubMed PMID: 21995801.

Saller S, Merz-Lange J, Raffael S, Hecht S, Pavlik R, Thaler C, Berg D, Berg U, Kunz L, Mayerhofer A. Norepinephrine, active norepinephrine transporter, and norepinephrine-metabolism are involved in the generation of reactive oxygen species in human ovarian granulosa cells. Endocrinology. 2012 Mar;153(3):1472-83. PubMed PMID: 22234472.

Sarapik A, Velthut A, Haller-Kikkatalo K, Faure GC, Béné MC, de Carvalho Bittencourt M, Massin F, Uibo R, Salumets A. Follicular proinflammatory cytokines and chemokines as markers of IVF success. Clin Dev Immunol. 2012;2012:606459. PubMed PMID: 22007253; PubMed Central PMCID: PMC3189459.

Seow KM, Wang PH. Antimüllerian hormone: a marker for prediction of ovarian function and polycystic ovary syndrome. J Chin Med Assoc. 2012 Mar;75(3):93-4. PubMed PMID: 22440264.

Sijanović S, Vidosavljević D, Sijanović I. Role of laparoscopic surgery in treatment of infertility. Med Glas Ljek komore Zenicko-doboj kantona. 2012 Feb;9(1):10-6. PubMed PMID: 22634902.

Sugaya S, Honma R. A case of polycystic ovary syndrome conceived by intracytoplasmic sperm injection following laparoscopic ovarian drilling. Clin Exp Obstet Gynecol. 2012;39(2):236-8. PubMed PMID: 22905473.

Szydlarska D, Grzesiuk W, Kondracka A, Bartoszewicz Z, Bar-Andziak E. Measuring salivary androgens as a useful tool in the diagnosis of polycystic ovary syndrome. Endokrynol Pol. 2012;63(3):183-90. PubMed PMID: 22744623.

Tosi F, Negri C, Perrone F, Dorizzi R, Castello R, Bonora E, Moghetti P. Hyperinsulinemia amplifies GnRH agonist stimulated ovarian steroid secretion in women with polycystic ovary syndrome. J Clin Endocrinol Metab. 2012 May;97(5):1712-9. PubMed PMID: 22419715.

Verit FF. The prevalence of metabolic syndrome in clomiphene citrate resistant polycystic ovary syndrome. Gynecol Endocrinol. 2012 May;28(5):365-9. PubMed PMID: 22409701.

Xi W, Gong F, Lu G. Correlation of serum Anti-Müllerian hormone concentrations on day 3 of the in vitro fertilization stimulation cycle with assisted reproduction outcome in polycystic ovary syndrome patients. J Assist Reprod Genet. 2012 May;29(5):397-402. PubMed PMID: 22382641; PubMed Central PMCID: PMC3348272.

Yilmaz N, Uygur D, Dogan M, Ozgu E, Salman B, Mollamahmutoglu L. The effect of follicular antimullerian hormone levels of non-obese, non-hyperandrogenemic polycystic ovary syndrome patients on assisted reproduction outcome. Gynecol Endocrinol. 2012 Mar;28(3):162-5. PubMed PMID: 22103791.

Zhong YP, Ying Y, Wu HT, Zhou CQ, Xu YW, Wang Q, Li J, Shen XT, Li J. Comparison of Endocrine Profile and In Vitro Fertilization Outcome in Patients with PCOS, Ovulatory PCO, or Normal Ovaries. Int J Endocrinol. 2012;2012:492803. PubMed PMID: 22518124; PubMed Central PMCID: PMC3299229.

Zhu W, Chen M, Fu Z, Li X, Qin C, Tang X, Chen X. Repeat transvaginal ultrasound-guided ovarian interstitial laser treatment improved the anovulatory status in women with polycystic ovarian syndrome. Eur J Obstet Gynecol Reprod Biol. 2012 May;162(1):50-4. PubMed PMID: 22397748.

PCOS – Phenotypic Variation

Amsterdam ESHRE/ASRM-Sponsored 3rd PCOS Consensus Workshop Group. Consensus on women's health aspects of polycystic ovary syndrome (PCOS). Hum Reprod. 2012 Jan;27(1):14-24. PubMed PMID: 22147920.

Boyle JA, Cunningham J, O'Dea K, Dunbar T, Norman RJ. Prevalence of polycystic ovary syndrome in a sample of Indigenous women in Darwin, Australia. Med J Aust. 2012 Jan 16;196(1):62-6. PubMed PMID: 22256938.

Carmina E, Campagna AM, Lobo RA. A 20-year follow-up of young women with polycystic ovary syndrome. Obstet Gynecol. 2012 Feb;119(2 Pt 1):263-9. PubMed PMID: 22270277.

Carmina E, Dumesic D. Androgen disorders. Steroids. 2012 Mar 10;77(4):289. PubMed PMID: 22178786.

Costa EC, Sá JC, Soares EM, Lemos TM, Maranhão TM, Azevedo GD. Anthropometric indices of central obesity how discriminators of metabolic syndrome in Brazilian women with polycystic ovary syndrome. Gynecol Endocrinol. 2012 Jan;28(1):12-5. PubMed PMID: 21958393.

Diamanti-Kandarakis E, Christakou C, Marinakis E. Phenotypes and enviromental factors: their influence in PCOS. Curr Pharm Des. 2012;18(3):270-82. PubMed PMID: 22229564.

Doll I, Doll R, Buhling KJ. Diagnosis and therapy of polycystic ovarian syndrome: results of a survey among German gynecologists with a review on literature. Arch Gynecol Obstet. 2012 Mar;285(3):689-97. PubMed PMID: 21830009.

Fauser BC, Tarlatzis BC, Rebar RW, Legro RS, Balen AH, Lobo R, Carmina E, Chang J, Yildiz BO, Laven JS, Boivin J, Petraglia F, Wijeyeratne CN, Norman RJ, Dunaif A, Franks S, Wild RA, Dumesic D, Barnhart K. Consensus on women's health aspects of polycystic ovary syndrome (PCOS): the Amsterdam ESHRE/ASRM-Sponsored 3rd PCOS Consensus Workshop Group. Fertil Steril. 2012 Jan;97(1):28-38.e25. PubMed PMID: 22153789.

Głuszak O, Stopińska-Głuszak U, Glinicki P, Kapuścińska R, Snochowska H, Zgliczyński W, Dębski R. Phenotype and metabolic disorders in polycystic ovary syndrome. ISRN Endocrinol. 2012;2012:569862. PubMed PMID: 22462015; PubMed Central PMCID: PMC3302054.

Glintborg D, Mumm H, Hougaard DM, Ravn P, Andersen M. Smoking is associated with increased adrenal responsiveness, decreased prolactin levels and a more adverse lipid profile in 650 white patients with polycystic ovary syndrome. Gynecol Endocrinol. 2012 Mar;28(3):170-4. PubMed PMID: 21770838.

Glintborg D, Mumm H, Ravn P, Andersen M. Age associated differences in prevalence of individual rotterdam criteria and metabolic risk factors during reproductive age in 446 caucasian women with polycystic ovary syndrome. Horm Metab Res. 2012 Sep;44(9):694-8. PubMed PMID: 22382934.

Golbahar J, Al-Ayadhi M, Das NM, Gumaa K. Sensitive and specific markers for insulin resistance, hyperandrogenemia, and inappropriate gonadotrophin secretion in women with polycystic ovary syndrome: a case-control study from Bahrain. Int J Womens Health. 2012;4:201-6. PubMed PMID: 22654525; PubMed Central PMCID: PMC3363136.

Guo M, Chen ZJ, Eijkemans MJ, Goverde AJ, Fauser BC, Macklon NS. Comparison of the phenotype of Chinese versus Dutch Caucasian women presenting with polycystic ovary syndrome and oligo/amenorrhoea. Hum Reprod. 2012 May;27(5):1481-8. PubMed PMID: 22402209.

Koiou E, Tziomalos K, Dinas K, Katsikis I, Kandaraki EA, Tsourdi E, Mavridis S, Panidis D. Plasma plasminogen activator inhibitor-1 levels in the different phenotypes of the polycystic ovary syndrome. Endocr J. 2012;59(1):21-9. PubMed PMID: 21996594.

Koiou E, Tziomalos K, Katsikis I, Dinas K, Tsourdi EA, Kandaraki EA, Delkos D, Papadakis E, Panidis D. Plasma von Willebrand factor antigen levels are elevated in the classic phenotypes of polycystic ovary syndrome. Hormones (Athens). 2012 Jan-Mar;11(1):77-85. PubMed PMID: 22450347.

Moran C, Arriaga M, Rodriguez G, Moran S. Obesity differentially affects phenotypes of polycystic ovary syndrome. Int J Endocrinol. 2012;2012:317241. PubMed PMID: 22829818; PubMed Central PMCID: PMC3399368.

Panidis D, Tziomalos K, Macut D, Delkos D, Betsas G, Misichronis G, Katsikis I. Cross-sectional analysis of the effects of age on the hormonal, metabolic, and ultrasonographic features and the prevalence of the different phenotypes of polycystic ovary syndrome. Fertil Steril. 2012 Feb;97(2):494-500. PubMed PMID: 22192350.

Panidis D, Tziomalos K, Misichronis G, Papadakis E, Betsas G, Katsikis I, Macut D. Insulin resistance and endocrine characteristics of the different phenotypes of polycystic ovary syndrome: a prospective study. Hum Reprod. 2012 Feb;27(2):541-9. PubMed PMID: 22144419.

Pesant MH, Desmarais G, Fink GD, Baillargeon JP. Reference ranges for total and calculated free and bioavailable testosterone in a young healthy women population with normal menstrual cycles or using oral contraception. Clin Biochem. 2012 Jan;45(1-2):148-50. PubMed PMID: 22019954.

Rachoń D. Differential diagnosis of hyperandrogenism in women with polycystic ovary syndrome. Exp Clin Endocrinol Diabetes. 2012 Apr;120(4):205-9. PubMed PMID: 22421986.

Sanchón R, Gambineri A, Alpañés M, Martínez-García MÁ, Pasquali R, Escobar-Morreale HF. Prevalence of functional disorders of androgen excess in unselected premenopausal women: a study in blood donors. Hum Reprod. 2012 Apr;27(4):1209-16. PubMed PMID: 22343706.

Xu X, Shi Y, Cui Y, Ma J, Che L, Chen ZJ. Endocrine and metabolic characteristics of polycystic ovary syndrome in Chinese women with different phenotypes. Clin Endocrinol (Oxf). 2012 Mar;76(3):425-30. PubMed PMID: 21815904.

Zueff LF, Martins WP, Vieira CS, Ferriani RA. Ultrasonographic and laboratory markers of metabolic and cardiovascular disease risk in obese women with polycystic ovary syndrome. Ultrasound Obstet Gynecol. 2012 Mar;39(3):341-7. PubMed PMID: 21898634.

PCOS – Pregnancy Complications

Eftekhar M, Khalili MA, Aflatoonian A, Esfandiari N. Successful pregnancy following a novel endometrial preparation in a PCOS patient undergoing IVM: a case report. J Assist Reprod Genet. 2012 Apr;29(4):335-6. PubMed PMID: 22350529; PubMed Central PMCID: PMC3309990.

Eilertsen TB, Vanky E, Carlsen SM. Increased prevalence of diabetes and polycystic ovary syndrome in women with a history of preterm birth: a case-control study. BJOG. 2012 Feb;119(3):266-75. PubMed PMID: 22168920.

Faucher MA. Closer surveillance in pregnancy for women with polycystic ovary syndrome may be merited. J Midwifery Womens Health. 2012 Mar-Apr;57(2):202-3. PubMed PMID: 22432496.

Legro RS, Kunselman AR, Brzyski RG, Casson PR, Diamond MP, Schlaff WD, Christman GM, Coutifaris C, Taylor HS, Eisenberg E, Santoro N, Zhang H; NICHD Reproductive Medicine Network. The Pregnancy in Polycystic Ovary Syndrome II (PPCOS II) trial: rationale and design of a double-blind randomized trial of clomiphene citrate and letrozole for the treatment of infertility in women with polycystic ovary syndrome. Contemp Clin Trials. 2012 May;33(3):470-81. PubMed PMID: 22265923; PubMed Central PMCID: PMC3312939.

Maryam K, Bouzari Z, Basirat Z, Kashifard M, Zadeh MZ. The comparison of insulin resistance frequency in patients with recurrent early pregnancy loss to normal individuals. BMC Res Notes. 2012 Mar 9;5:133. PubMed PMID: 22405326; PubMed Central PMCID: PMC3329408.

Morin-Papunen L, Rantala AS, Unkila-Kallio L, Tiitinen A, Hippeläinen M, Perheentupa A, Tinkanen H, Bloigu R, Puukka K, Ruokonen A, Tapanainen JS. Metformin improves pregnancy and live-birth rates in women with polycystic ovary syndrome (PCOS): a multicenter, double-blind, placebo-controlled randomized trial. J Clin Endocrinol Metab. 2012 May;97(5):1492-500. PubMed PMID: 22419702.

Palomba S, Falbo A, Russo T, Rivoli L, Orio M, Cosco AG, Vero R, Capula C, Tolino A, Zullo F, Colao A, Orio F. The risk of a persistent glucose metabolism impairment after gestational diabetes mellitus is increased in patients with polycystic ovary syndrome. Diabetes Care. 2012 Apr;35(4):861-7. PubMed PMID: 22338097; PubMed Central PMCID: PMC3308296.

Sung JF, Taslimi MM, El-Sayed YY. Continuous glucose monitoring during pregnancy in women with polycystic ovary syndrome. Obstet Gynecol. 2012 Feb;119(2 Pt 1):383-4; PubMed PMID: 22270301.

Yamamoto M, Feigenbaum SL, Crites Y, Escobar GJ, Yang J, Ferrara A, Lo JC. Risk of preterm delivery in non-diabetic women with polycystic ovarian syndrome. J Perinatol. 2012 Oct;32(10):770-6. PubMed PMID: 22261835.

PCOS – Protocol Reviews

None.

PCOS – Psychology

Cipkala-Gaffin J, Talbott EO, Song MK, Bromberger J, Wilson J. Associations between psychologic symptoms and life satisfaction in women with polycystic ovary syndrome. J Womens Health (Larchmt). 2012 Feb;21(2):179-87. PubMed PMID: 22004245.

Crawford P, Duncan S. Gender issues. Handb Clin Neurol. 2012;108:759-81. PubMed PMID: 22939064.

Dokras A. Mood and anxiety disorders in women with PCOS. Steroids. 2012 Mar 10;77(4):338-41. PubMed PMID: 22178257.

Dokras A, Clifton S, Futterweit W, Wild R. Increased prevalence of anxiety symptoms in women with polycystic ovary syndrome: systematic review and meta-analysis. Fertil Steril. 2012 Jan;97(1):225-30.e2. PubMed PMID: 22127370.

Kocełak P, Chudek J, Naworska B, Bąk-Sosnowska M, Kotlarz B, Mazurek M, Madej P, Skrzypulec-Plinta V, Skałba P, Olszanecka-Glinianowicz M. Psychological disturbances and quality of life in obese and infertile women and men. Int J Endocrinol. 2012;2012:236217. PubMed PMID: 22844280; PubMed Central PMCID: PMC3403244.

Okoroafor UC, Jungheim ES. Incorporating patient preference into the management of infertility in women with polycystic ovary syndrome. Patient Prefer Adherence. 2012;6:407-15. PubMed PMID: 22723725; PubMed Central PMCID: PMC3379865.

Stovall DW, Scriver JL, Clayton AH, Williams CD, Pastore LM. Sexual function in women with polycystic ovary syndrome. J Sex Med. 2012 Jan;9(1):224-30. PubMed PMID: 22082203.

PCOS – Thyroid Complications

Celik C, Abali R, Tasdemir N, Guzel S, Yuksel A, Aksu E, Yılmaz M. Is subclinical hypothyroidism contributing dyslipidemia and insulin resistance in women with polycystic ovary syndrome? Gynecol Endocrinol. 2012 Aug;28(8):615-8. PubMed PMID: 22329744.

Kachuei M, Jafari F, Kachuei A, Keshteli AH. Prevalence of autoimmune thyroiditis in patients with polycystic ovary syndrome. Arch Gynecol Obstet. 2012 Mar;285(3):853-6. PubMed PMID: 21866332.

PCOS – Uterus

Dos Santos E, Serazin V, Morvan C, Torre A, Wainer R, de Mazancourt P, Dieudonné MN. Adiponectin and leptin systems in human endometrium during window of implantation. Fertil Steril. 2012 Mar;97(3):771-8.e1. PubMed PMID: 22265003.

Gonzalez D, Thackeray H, Lewis PD, Mantani A, Brook N, Ahuja K, Margara R, Joels L, White JO, Conlan RS. Loss of WT1 expression in the endometrium of infertile PCOS patients: a hyperandrogenic effect? J Clin Endocrinol Metab. 2012 Mar;97(3):957-66. PubMed PMID: 22238403.

Haoula Z, Salman M, Atiomo W. Evaluating the association between endometrial cancer and polycystic ovary syndrome. Hum Reprod. 2012 May;27(5):1327-31. PubMed PMID: 22367984.

Makker A, Goel MM, Das V, Agarwal A. PI3K-Akt-mTOR and MAPK signaling pathways in polycystic ovarian syndrome, uterine leiomyomas and endometriosis: an update. Gynecol Endocrinol. 2012 Mar;28(3):175-81. PubMed PMID: 21916800.

Sadek KH, Cagampang FR, Bruce KD, Shreeve N, Macklon N, Cheong Y. Variation in stability of housekeeping genes in endometrium of healthy and polycystic ovarian syndrome women. Hum Reprod. 2012 Jan;27(1):251-6. PubMed PMID: 22052386.

Sweet MG, Schmidt-Dalton TA, Weiss PM, Madsen KP. Evaluation and management of abnormal uterine bleeding in premenopausal women. Am Fam Physician. 2012 Jan 1;85(1):35-43. PubMed PMID: 22230306.

Premature Adrenarche

Oron T, Lebenthal Y, de Vries L, Yackobovitch-Gavan M, Phillip M, Lazar L. Interrelationship of extent of precocious adrenarche in appropriate for gestational age girls with clinical outcome. J Pediatr. 2012 Feb;160(2):308-13. doi: 10.1016/j.jpeds.2011.08.009.

Sontag-Padilla LM, Dorn LD, Tissot A, Susman EJ, Beers SR, Rose SR. Executive functioning, cortisol reactivity, and symptoms of psychopathology in girls with premature adrenarche. Dev Psychopathol. 2012 Feb;24(1):211-23. doi: 10.1017/S0954579411000782

Tissot A, Dorn LD, Rotenstein D, Rose SR, Sontag-Padilla LM, Jillard CL, Witchel SF, Berga SL, Loucks TL, Beers SR. Neuropsychological functioning in girls with premature adrenarche. J Int Neuropsychol Soc. 2012 Jan;18(1):151-6. doi: 10.1017/S135561771100138X

Williams RM, Ward CE, Hughes IA. Premature adrenarche. Arch Dis Child. 2012 Mar;97(3):250-4. PubMed PMID: 21835833.

Brief summaries of selected publications

Congenital Adrenal Hyperplasia and Disorders of Steroidogenesis

Kamrath C, Hochberg Z, Hartmann MF, Remer T, Wudy SA. Increased activation of the alternative "backdoor" pathway in patients with 21-hydroxylase deficiency: evidence from urinary steroid hormone analysis. J Clin Endocrinol Metab. 2012 Mar;97(3):E367-75. Epub 2011 Dec 14

In this study, Kamrath and colleagues collected urine samples from 142 untreated individuals with 21-hydroxylase deficiency. The subjects varied in age from one day to 25 years. Urine samples were also obtained from 138 control subjects. The urine samples were analyzed by gas chromatography-mass spectrometry to compare metabolites reflecting Δ^5, Δ^4, and backdoor pathway for metabolism of steroid hormones. These investigators found that the untreated 21-OHD subjects had increased urinary ratios of 5α-pregnane-3α,17α-diol-20-one (pdiol) reflecting the backdoor pathway compared to the Δ^4 and Δ^5 pathway metabolites. Thus, the backdoor pathway of steroid hormone metabolism is active postnatally with maximum activity during early infancy.

PCOS - Etiology and Animal Models

Amalfi S, Velez LM, Heber MF, Vighi S, Ferreira SR, Orozco AV, Pignataro O, Motta AB. Prenatal hyperandrogenization induces metabolic and endocrine alterations which depend on the levels of testosterone exposure. PLoS One. 2012;7(5):e37658. PubMed PMID: 22655062; PubMed Central PMCID: PMC3360026.

In this study, authors aimed to the see the impact of prenatal testosterone levels on metabolic and endocrine alterations during adult life. They injected pregnant Sprague Dawley rats prenatally with either 2 or 5 mg free testosterone (groups T2 and T5, respectively) from day 16 to day 19 day of gestation. Female offspring from T2 and T5 displayed different phenotypes of PCOS during adult life. Offspring from T2 showed hyperandrogenism, ovarian cysts and ovulatory cycles, whereas those from T5 displayed hyperandrogenism, ovarian cysts and anovulatory cycles. Both these groups showed increased circulating glucose levels after an intraperitoneal glucose tolerance test which was higher in T5 rats and directly correlated with body weight at prepubertal age. A decrease in body weight at prepubertal age in both T2 and T5 rats, however, was compensated during adult life. At the molecular level, the higher dose of prenatal testosterone (T5) enhanced the expression of both the protein that regulates cholesterol availability (the steroidogenic acute regulatory protein (StAR)) and the protein expression of the transcriptional factor: peroxisome proliferator-activated receptor gamma (PPAR gamma). Prenatal hyperandrogenization induced an anti-oxidant response that prevented a possible pro-oxidant status and also the higher dose of prenatal testosterone (T5) induced a pro-inflammatory state in ovarian tissue mediated by increased levels of prostaglandin E (PG) and the protein expression of cyclooxygenase 2 (COX2, the limiting enzyme in PG synthesis). The authors concluded that prenatal injection of testosterone in female rats modulates the uterine environment and that, in turn, results in endocrine and metabolic abnormalities that resemble PCOS phenotypes during adult life.

McGee WK, Bishop CV, Bahar A, Pohl CR, Chang RJ, Marshall JC, Pau FK, Stouffer RL, Cameron JL. Elevated androgens during puberty in female rhesus monkeys lead to increased neuronal drive to the reproductive axis: a possible component of polycystic ovary syndrome. Hum Reprod. 2012 Feb;27(2):531-40. PubMed PMID: 22114112; PubMed Central PMCID: PMC3258033.

These investigators assessed whether androgen exposure in the childhood and adolescent period could lead to pubertal alterations in LH secretory patterns in female rhesus monkeys. Subcutaneous testosterone implants were placed beginning at 1 year of age to maintain elevated circulating testosterone concentrations during the post-pubertal period. Subsequently, pulsatile secretion of LH was measured over 12 h during the early follicular phase of a menstrual cycle. In addition, GnRH-stimulated gonadotropin responses were determined. Although the timing of menarche was comparable between the treated and control monkeys, the testosterone-treated animals had a significantly greater LH pulse frequency during the early follicular phase compared with controls (P = 0.039) when measured at 5 years of age. The GnRH-stimulated LH response was greater in the testosterone-treated animals at 4 years of age (P = 0.042), but not when the animals were 5 years old (P = 0.57). Both groups showed similar rates of ovulation in early adulthood. One limitation of this study is the small number of animals. Nevertheless, these data suggest that increased androgen exposure during puberty may alter the HPG axis to resemble the HPG axis features previously noted in girls with hyperandrogenism and obesity.

Veiga-Lopez A, Ye W, Padmanabhan V. Developmental programming: prenatal testosterone excess disrupts anti-Müllerian hormone expression in preantral and antral follicles. Fertil Steril. 2012 Mar;97(3):748-56. PubMed PMID: 22245531; PubMed Central PMCID: PMC3292625.

This study investigated the ovarian impact of fetal testosterone exposure on the expression of selected ovarian regulators implicated in follicular recruitment and persistence using a sheep model of PCOS. Immunohistochemical determination of expression of anti-Mullerian hormone (AMH), kit ligand, and growth differentiation factor 9 (GDF9) in fetal, prepubertal, and adult ovarian tissues showed that, in adult ovaries, fetal testosterone exposure reduced AMH protein expression in granulosa cells of preantral follicles, while increasing its expression in antral follicles, compared to age-matched ewes. These differences were not evident in prepubertal animals. Ovarian protein expression of GDF9 and kit ligand were not altered. Fetal testosterone exposure may thus contribute to over-expression of ovarian AMH in a sheep model for PCOS, analogous to ovarian findings in women with the syndrome. Fetal testosterone exposure may induce abnormal folliculogenesis in the sheep PCOS model (increased antral follicle persistence and anovulation), at least in part, through changes in AMH regulation.

PCOS – Ovary

Homburg R, Hendriks ML, König TE, Anderson RA, Balen AH, Brincat M, Child T, Davies M, D'Hooghe T, Martinez A, Rajkhowa M, Rueda-Saenz R, Hompes P, Lambalk CB. Clomifene citrate or low-dose FSH for the first-line treatment of infertile women with anovulation associated with polycystic ovary syndrome: a prospective randomized multinational study. Hum Reprod. 2012 Feb;27(2):468-73. PubMed PMID: 22128296.

Clomiphene induction of ovulation has been the primary option for induction of ovulation for infertile women with PCOS for decades. Modest pregnancy rates, significant side effects and adverse effects on the endometrium and cervical mucus by clomiphene have led to several peer-reviewed reports evaluating low dose gonadotropins as an alternative. This RCT, using a low-dose approach with recombinant FSH as a first-

line treatment, yielded excellent results. Cumulative pregnancy rates were significantly higher and time to pregnancy faster. OHSS was avoided and a very low multiple birth rate was noted. The same monitoring protocols were used for both treatment arms and the monitoring costs were not different. Gonadotropin medication costs continue to be an impediment to this approach in many countries. For example the hetereogeneity of infertility treatment coverage in the U.S. (if infertility treatment is covered by a health plan at all) would restrict gonadotropins for a significant amount of patients. The advantages of a faster time to conception, higher overall pregnancy rate and subsequently greater patient satisfaction (with low OHSS and multiple gestations), however, may offset any cost disadvantage for partially covered or self-paying patients. It would also be of interest to evaluate this approach in obese PCOS patients (who are the more common in the U.S.) as the treatment response and overall doses of medications required may prove to be different than in this study, where the BMI was essentially normal.

PCOS – Phenotypic Variation

Amsterdam ESHRE/ASRM-Sponsored 3rd PCOS Consensus Workshop Group. Consensus on women's health aspects of polycystic ovary syndrome (PCOS). Hum Reprod. 2012 Jan;27(1):14-24. PubMed PMID: 22147920.
AND
Fauser BC, Tarlatzis BC, Rebar RW, Legro RS, Balen AH, Lobo R, Carmina E, Chang J, Yildiz BO, Laven JS, Boivin J, Petraglia F, Wijeyeratne CN, Norman RJ, Dunaif A, Franks S, Wild RA, Dumesic D, Barnhart K. Consensus on women's health aspects of polycystic ovary syndrome (PCOS): the Amsterdam ESHRE/ASRM-Sponsored 3rd PCOS Consensus Workshop Group. Fertil Steril. 2012 Jan;97(1):28-38.e25. PubMed PMID: 22153789.

These are two identical publications that represent considerations and conclusions arising from the recent consensus update conference on the diagnostic criteria required for PCOS, as well as the deliberations that went into inclusion of traits in the diagnosis. Perhaps more importantly, these two papers include consideration of relevant, but non-diagnostic, traits relavant to PCOS.