DGF
NEWS LETTER

Let us give health
to every woman

Issue -5
(May - 2013)

Journal of DGF

INSIDE PAGES

"Women's Health is in Women's Hand"

Dr. Sharda Jain

PCOS
in Adolescents

Dr. Sangeeta Gupta

Adolescent health is quite important as the adolescent girl becomes the young woman who has to be in prime health to manage the Reproductive years, Job & Home – all at same time.

Appropriate education is essential to avoid harmful habits, to have better nutrition, to avoid becoming obese which is a major public health issues at present time. She should also know of her menstrual problems, contraception & related women health issues.

POLYCYSTIC OVARY SYNDROME (PCOS) - most common endocrinological problem in adolescents, is the a heterogenous syndrome & the leading cause of anovulation , hirsutism and infertility in women. PCOS is increasingly being recognized as **BIG PROBLEM** in adolescent girls, seeking treatment for signs **and** symptoms of hyperandrogenism , obesity & delayed periods.

The etiology of PCOS remains unknown, There appears to be a strong genetic predisposition.

Gynaecologist should address this issues on war footing as 50% treatment is weight control only. If adolescents have understood their long term problem of PCOS , its wider implications & also know that weight reduction & weight control is SIMPLEST REMEDY - the problem of Gynaecologists & of country is half won……

If your young ones have all the wealth in the world but loose their self-esteem due to disfigured body, (overweight , hirsutism & acne) - is it worth having it ?

Responsibility & Strong Action go together ……..
let us make "PCOS Club" & shoot information for our girls from time to time from Facebook of D.G.F.- WOW INDIA & its website www.wowindia.info

PCOS IN ADOLESCENT


Dr. Sangeeta Gupta


Dr. Nupur Gupta

1 Most frequent endocrine problem in this age group

In 5-15%women of reproductive age group (12-45 years)

Consensus on women's health aspects of polycystic ovary syndrome (PCOS): the Amsterdam ESHRE/ASRM-Sponsored 3rd PCOS Consensu Workshop Group. Fertility and Sterility Vol. 97, No. 1,January 2012. Bart C. J. M. Fauser et.al.

2 Clinical presentation

Adolescent Period	Reproductive Period	Menopausal
Menstrual Irregularity	Infertility	Metabolic Syndrome
Obesity	Early Pregnancy loss	Ca Endometrium
Cosmetic Concerns - Acne - Hirsutism - Hair Loss	During pregnancy - PIH - GDM	

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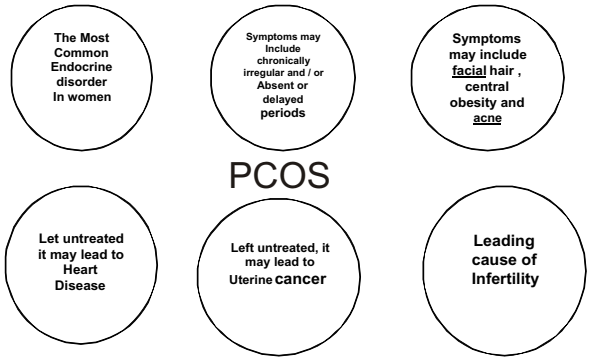

4 Ultrasound

ROTTERDAM CRITERIA

- In one or both ovaries ovarian volume > 10 ml
- ≥ 12 follicles, 2-9mm in diameter
- Echo dense stroma

5 Ultrasound for PCOS

10%–48% of adolescents who do not have PCOS may have polycystic-appearing ovaries

Mortensen M, Rosenfield RL, Littlejohn E.Functional significance of polycystic-size ovaries in healthy adolescents. J Clin Endocrinol Metab. 2006;91:3786–3790

Blank SK, Helm KD, McCartney CR, Marshall JC Polycystic ovar syndrome in adolescence. Ann N Y Acad Sci. 2008;1135:76–84

6 USG for PCOS

Trans abdominal ultrasound –Technical limitation especially in overweight and obese girls

Given the apparent lack of specificity of USG in adolescents ,USG should not b recommended as a first line for diagnosis in this age group .

PCOS –evidence based guidelines- Australia- 2011

7 Hyperandrogenism

Clinical signs of androgen excess	Biochemical signs of Androgen excess
Hirsutism	↑ Free testosterone
Acne	↑ Total testosterone
Androgenic alopecia	↑ Free androgen index
	↑ Androstenedione
	↑ DHEAS

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PCOS Definition 1990 - 2009	Hyperandrogenism (Clinical or Biochemical)	Oligo- menorrhea or Oligo-Ovulation	Polycystic Ovaries on USG
NIH (1990)	yes	yes	no
Rotterdam (2003)	yes	Yes 2 of the 3 criteria	yes
AE-PCOS Society (2009)	yes	Yes 1 of 2 criteria	yes

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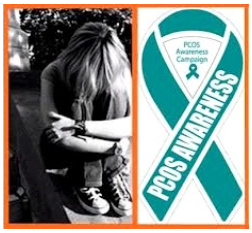
9 Other Etiologies



- Thyroid dysfunction
- Hyper prolactinemia
- Congenital adrenal hyperplasia
- Androgen secreting tumors
- Cushings syndrome
- Drug induced Androgen excess

10 esting in Adolescents Presenting with PCOS-Like Symptoms

TSH
Prolactin
Total and free testosterone
DHEAS
17-OH progesterone
Ultrasound of ovaries
(not essential if other 2 criteria are met)
FSH, LH, estradiol (in amenorrheic Adolescents)

11 Interpretation of androgen lab values

Testosterone	Mild ↑	in pcos
DHEAS	Marked ↑	androgen Secreting adrenal tumor
17-OH Progesterone		

Late onset congenital adrenal hyperplasia

12 Androgen estimation

Follicular phase

levels may rise during mid cycle

Morning levels

diurnal variation

13 Hyperinsulinaemia & Hyperandrogenaemia

Insulin Receptor Dysfunction

Pancreas

Hyperinsulinaemia

Liver

Reduced SHBG

Hypothalamus

LHRH

Pituitary

↑ **LH FSH**

Adrenal
Elevated DHEAS

Stroma Follicle
Androgens

↑ **Free androgens**

14 Management of PCOS in adolescents

Objectives of Treatment

Management of **menstrual irregularity**

Management of **Acne and Hirsutism**

Prevention of **long term complications**

15 Menstrual Irregularity

Defined as menses that occur at interval of greater than **6-8 weeks** in the absence of thyroid, adrenal or other pituitary dysfunction .

Difficult to distuinguish from puberty associated menstrual irregularity

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In adolescent women (<18 years) ,**after 2 years** of irregular cycles ,following the onset of menarche PCOS should be considered and appropriate evaluation should started

PCOS –evience based guidelines- Australia- 2011

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17 Treatment of Menstrual irregularity

Combined OCP'S
Avoid androgenic progesterone

Cyclical progesterone
5-10 mg for 10-14 days

Non Androgenic Progestogens:
Desogestrel ***(novelon , femilon)***

Antiandrogens with progestational activit

Cyperoterone acetate
(EE 30 mcg + C 2 mg -Diane35) Drosperinone
(EE 30 mcg + D 3 mg -yasmin)

18 Cyproterone acetate (CPA)

Potent antiandrogen

Competitive antagonism of androgen receptors and inhibition of enzymes in androgen Biosynthesis pathway

Mild progestational activity

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Women who take contraceptive pills containing cyproterone acetate have a ***six- to sevenfold risk of developing thromboembolism*** compared to women who do not take any contraceptive pill, and twice the risk of women who take a contraceptive pill containing levonorgestrel

Lidegaard et al. (2011). "Risk of venous thromboembolism from use of oral contraceptives containing different progestogens and oestrogen Doses". *BMJ* **343**: 1–15.

20 Drosperinone

Antimineralocorticoid activity- decreased water retention

Mild anti androgen

Higher risk of thromboembolism than other OCP's (US –FDA 2011)

Combined Hormonal Contraceptives (CHCs) and the Risk of Cardiovascular Disease Endpoints ,US-FDA 2011, **CHC-CVD final report 111022v2**

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Girl with oligomenorrhea or amenorrhea –not wishing to take hormonal treatment ??

Treatment is advisable because of risk of *endometrial hyperplasia* . A women should Have withdrawal bleed at least every 3 months

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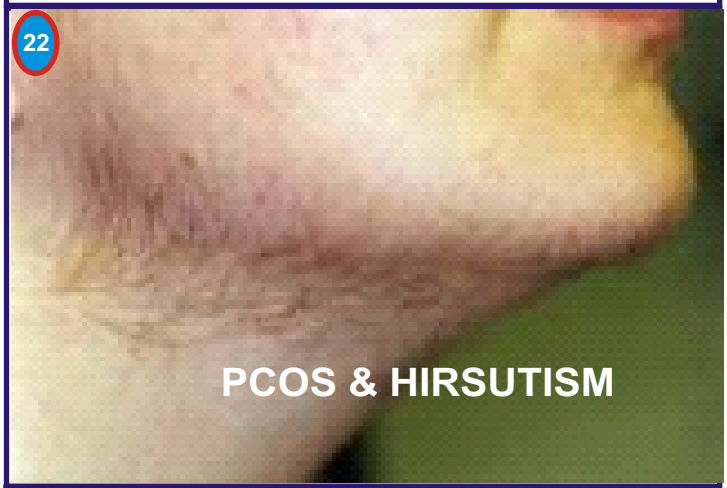


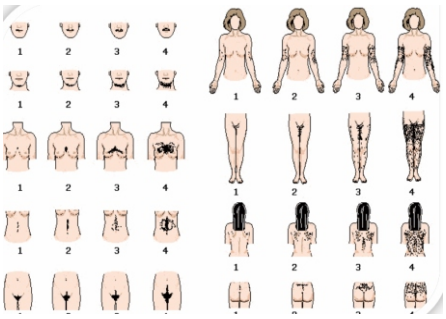
23 Prevalence of Hirsutism

1.2 to 18% of women in reproductive age group
PCOS responsible for 60-90%
Of hirsutism
CAH responsible for 2 to 5%
20% Idiopathic

Nikolan; Curr Obst & Gyn (2005) 15, 174-182
Azziz R, Endocrine Reviews 21(4): 347-362

Ferriman & Gallwey, 1961, J of Clinical Endocrinology

24 Scoring Hirsutism: Modified Ferriman Gallway Score



9 sites
Score 0 to 4
Max score of 36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Scoring hirsutism

Terminal hair defined as coarse pigmented medullated hairs, generally growing > 1 cm in length if uncut

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Management of hirsutism

- Systemic
- Topical
- Dermato-cosmetic therapies

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Antiandrogens

OCP,s with Cyproterone acetate

Spironolactone

Flutamide

Finasteride

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OCP's In Hirsutism

Suppression of LH	• Decreased ovarian androgen synthesis
Stimulation of SHBG production	• Deccreased free testosterone
Androgen receptor antagonism	• By Cyproterone acetate

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Spironolactone -Aldosterone antagonist

Aldactone-100 mg/day

Inhibition of androgen receptors

Suppression of adrenal androgen biosynthesis

Inhibition of 5-alpha reductase enzyme

30

Spironolactone

Generally well tolerated

BP and serum potassium levels –every 4 weeks in the initial months of treatment

C/I – renal insufficiency and hyperkalemia

Can cause feminization of female fetus –so contraception is must in sexually active women

31

Flutamide- androgen receptor blocker

250 -500 mg daily

can lead to *severe hepatotoxicity*

Should not be used as first line drug

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Finasteride- 5-alpha Reductase Inhibitor

2.5-7.5mg/day

Less effacious than spironolactone ?


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33 Glucocorticoids in hirsutism

Dexamethasone
0.25 to 0.5 mg daily can be prescribed in women
……..

1. **Hirsutism due to non classical CAH**
2. **Suboptimal response to OCP's and antiandrogens**
3. **Exhibit poor tolerance to OCP's**
4. **Are seeking ovulation induction**

34 Topical therapy in hirsutism

Efflornithine hydrochloride cream 13.9% Approved by US-FDA for reduction of facial hair

Noticeable results take 6-8 weeks

Adverse effects- itching ,skin dryness

35 Direct hair removal methods

Temporary	shaving chemical epilation bleaching waxing
Permanent	electrolysis Laser

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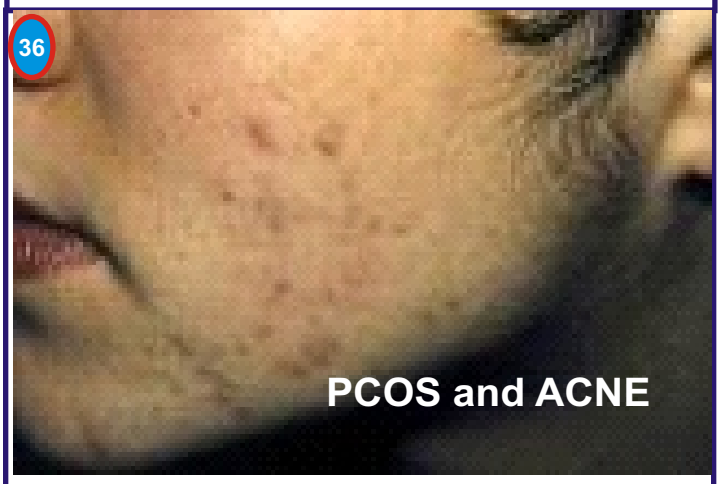


37 Topical retinoids

gold standard in acne treatment
Derivatives of Vit A

- **Tretinoin**
- **Adapalene – better tolerated**
- **Tezarotene - most effacacious**

Available as creams ,gels and solution
40-70%reduction in the no.of comedones and inflammatory lesions

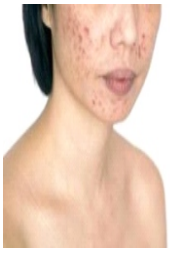
38 Topical antimicrobials in acne

Clindamycin
Erythromycin
Tetracycline
Benzoyl peroxide
Azelaic acid

Combination of topical antimicrobials with Retinoids or benzoyl peroxide- more effective

39 Topical antimicrobials in Acne

Potential for bacterial Resistance Slow onset of action



So it is recommended that topical antibiotics should Not be used alone

40 Oral Antibiotics in Acne

Tetracycline
Doxycycline - 50-100mg daily
Minocycline
Erythromycin

Reduce P.acnes in the follicles
Antibiotic resistance of P.acnes steadily increasing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Acne

OCP's with antiandrogen activity - 50-60%reduction in acne

Isotretinoin
- naturally occuring derivative of vit A
- Indicated in severe nodular acne
- 0.5-2mg/day- 4-6 months
- Proven teratogen

42

Long term management

PCOS & Metabolic Syndrome

43

Criteria – metabolic syndrome

WHO

ATP-III (adult treatment panel)

IDF (international diabetes federation)

44

Metabolic Syndrome – IDF 2006

Abdominal Obesity (waist circumference >80 cm for women)

Plus any 2 of the following 4 facto

45

Metabolic Syndrome IDF 2006

Plus any 2 of the following 4 factors

Triglycerides > 150 mg/100 ml

HDL Cholesterol <50 mg/100 ml in females

BP Systolic > 130 mmHg
Diastolic > 85 mmHg

F BS > 100 mg/dl

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Metabolic Syndrome

20-25% 0f world's adult population has MBS

5 times - Diabetes

3 times heart attack and stroke

A cluster of most dangerous heart attack risk factors

MBS is driving the twin global epidemics of diabetes and CVD

47

Metabolic syndrome

Prevalence of MBS is high in women with PCOS (43-46%) …even after adjusting for obesity

All women with PCOS should be screened for metabolic syndrome

48

Life Style Management

Diet + Exercise = Weight Loss


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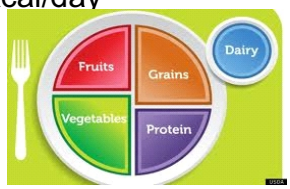
Diet

dietary intervention (high protien, low carbohydrate , low fat diet more effective)

energy deficit of 500-1000Kcal/day



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Diet counselling

Goals – **practical,realistic,achievable**

Small frequent meals
More fruits/vegetables/fibre(bran)
Decreased sugar/fried food /cola
Switch to healthy oils
More steamed /grilled cooking

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Exercise

American Diabetes Association recommends minimum of :-

- **150 minutes/week of moderate to vigrous exercise for individuals with IGT.**
- **Should be distributed over 3 days**
- **For long term weight reduction – hour/day of exercise is recommended.**

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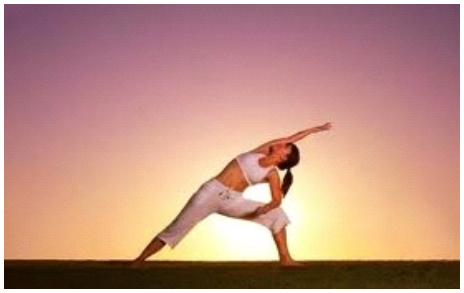
Find simple ways to add physical activity in daily routine



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Role of weight loss

5-7% wt. Reduction effective in restoring normal menses and fertility

54

Consensus on women's health aspects of polycystic ovary syndrome (PCOS): the Amsterdam ESHRE/ ASRM-Sponsored 3rd PCOS Consensus Workshop 2010

55

- **Overall, the benefits of OCPs outweigh the risks in most patients with PCOS (level B).**
- **Women with PCOS are more likely to have contraindications for OCP use than normal women (level C).**

56

- **There is no evidence for differences in effectiveness and risk among the various progestogens and when used in Combination with a 20 versus 30 mg daily dose of estrogen (level B)**

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PCOS IN ADOLESCENT

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- PCOS is a major risk factor for developing IG and T2D (level A).
- Obesity (by amplifying insulin resistance) is an exacerbating factor in the development of IGT and T2D in PCOS (level A).
- The increasing prevalence of obesity in the Population suggests that a further increase in diabetes in PCOS is to be expected (level B).
- Screening for IGT and T2D should be performed by OGTT (75 g, 0- and 2-hour values). There is no utility for measuring insulin in most cases (level C).

58

- Screening should be performed in the following conditions: hyperandrogenism with anovulation, acanthosis nigricans,obesity (BMI >30 kg/m2, or >25 in Asian populations), in women with a family history of T2D or GDM (level C).
- Metformin may be used for IGT and T2 (level A). Avoid use of other insulin sensitizing agents such as thiazolidinediones (GPP).

59

- Prolonged (>6 months) medical therapy for hirsutism is necessary to document effectiveness (level B)
- Antiandrogens should not be used without effective contraception (level B)
- Flutamide is of limited value because of its dose-dependent hepatotoxicity (level B).
- Drospirenone in the dosage used in some OCPs is not antiandrogenic(level B).

60

There are moderate quality data to support that women with PCOS have a 2.7-fold (95% confidence interval [CI],1.0–7.3) increased ris **for endometrial cancer**. (level B).

Limited data exist that do not support the conclusion that women with PCOS are at increased risk for **ovarian cancer** (level B).

61

Breast Cancer ??

Limited data exist that do not support the conclusion that women with PCOS are a increased risk for **breast cancr** (level B).

62

PCOS can't be cured

but the symptoms can be managed

50 % by just weight control

63

Implications of diagnosis at adolescent age

Optimization of lifestyle

Regular metabolic screening

Proactive fertility planning with consideration of planning for conception at an earlier age

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PCOS CLUB

Please shoot Information for teen & young PCOS patients

FB : DGF-WOW INDIA

Few Glimpses of
PCOS CME at ESIC PGIMSR Basaidarapur
on 25th April 2013

Head Office
35, Defence Enclave, Opp. Preet Vihar Petrol Pump,
Delhi-110092 Phone-22414049, 43015662
Email: delhi.gynaecologistforum@gmail.com
Website: www.delhigynaecologistforum.com