

# GYNAECOLOGY & OBSTETRICS UPDATE

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## Metformin in PCOS: 2004 Update

Polycystic Ovarian Syndrome (PCOS) affects an estimated 5-10% of women of reproductive age making it one of the commonest endocrinological disorder of this age group. PCOS patients have increased prevalence of cardiovascular risk factors similar to that seen in the metabolic syndrome (which, like PCOS, is characterised by insulin resistance). By the age of 40, up to 40% will have type 2 diabetes or impaired glucose tolerance. PCOS is therefore an important health concern and may represent a major health issue affecting young women today.

The diagnostic criteria, investigations and management of PCOS have been already discussed in "The Update Issues 19 and 33". However this issue will mainly discuss the use of Metformin in PCOS. **The routine use of Metformin ( and other insulin-sensitising drugs: troglitazone, rosiglitazone, pioglitazone, D-chiro-inositol) in clinical practice is unfortunately ahead of the available scientific evidence.** Although a wide range of benefits have been reported from non-randomised trials with Metformin, but most are observational and involve small numbers of participants. Close inspection of results from the adequately controlled studies shows that the benefits are modest. Recently a Cochrane systematic review and meta-analysis of randomised controlled trials (1) and a review from the RCOG (2) were published with the following recommendations:

- Insulin-sensitising agents have not been licensed in the UK for use in non-diabetic patients.

### Long term use

- **Effectiveness:** Long-term use of insulin-sensitising agents for avoidance of metabolic complications of PCOS cannot as yet be recommended (1,2,3). There are no published long-term studies on the effects of these agents on insulin resistance associated with PCOS or on reduction of incidence of impaired glucose tolerance, type II diabetes or dyslipidaemia
- **Safety:** Although many internet sites advise consideration of Metformin for long term use in PCOS, evidence for long-term safety is lacking. There is no literature as to the safety of long term use of Metformin in young women, and no conclusion can be drawn from the current studies and reviews as the longest trial followed up participants for only 6 months

### Short term use (maximum of 6 months)

- Metformin is an effective treatment for anovulation in infertile women with PCOS to achieve pregnancy. However there are only limited data on its safety in early pregnancy (1,4).
- Metformin should always be used as an adjuvant to general lifestyle improvements, and not as a replacement for increased exercise and improved diet. Lifestyle alteration is the most successful treatment for anovulation in infertile obese women with PCOS. Lifestyle alteration is also accompanied by a normalisation in glucose metabolism suggesting that it may reduce the likelihood of developing type II diabetes later in life
- No evidence that Metformin has an effect on reducing body mass index. Patients need to be aware that it is not a "weight loss" drug (a common claim on internet sites).

## References:

- (1) Insulin-sensitising drugs for PCOS In: *The Cochrane Library*, Issue 2, 2004.
- (2) RCOG 2003: [http://www.rcog.org.uk/resources/Public/Polys\\_Ovary\\_Syndrome\\_No33.pdf](http://www.rcog.org.uk/resources/Public/Polys_Ovary_Syndrome_No33.pdf)
- (3) *The Lancet*: <http://image.thelancet.com/extras/02art6157web.pdf>. 2003
- (4) *BMJ* 327:1-6, 2003

**Metformin should not be used for "routine" or "long term" PCOS management**

**It is not an alternative for general lifestyle improvements, (increased exercise and improved diet)**

**It is not a "weight loss" drug**

**It has no beneficial effects for non-obese patients and in absence of manifestation of hyperandrogenism**