Desogestrel, norgestimate, and gestodene: the newer progestins

Kaplan B

Authors' objectives
To review and compare the newer progestins (desogestrel, norgestimate and gestodene) with older oral contraceptives, with regard to efficacy and tolerability.

Searching
MEDLINE was searched from 1984 to 1994 and additional studies selected by review of the references. Index terms included 'progestins', 'desogestrel', 'gestodene', 'norgestimate', 'levonorgestrel' and 'norgestrel'.

Study selection
Study designs of evaluations included in the review
All available data from human clinical and pharmacokinetic trials performed in Europe, Canada and the US were included; both comparative and noncomparative studies were included because of the paucity of direct comparative information available. Eight of the 17 included studies were randomised.

Specific interventions included in the review
The newer progestins desogestrel, norgestimate and gestodene are compared with each other and to older oral contraceptives levonorgestrel, norethisterone, norgestrel and norethindrone.

Participants included in the review
Women taking oral contraceptives were included.

Outcomes assessed in the review
Efficacy was measured using either the pearl index (number of pregnancies per 100 women-years of use), life table data the number of women in 100 who would become pregnant during the cumulative cycle exposure, the percentage of pregnancies occurring over 6 cycles, or cumulative 6-cycle life table pregnancy rate.

Cycle control was assessed using the following measures: breakthrough bleeding, spotting, dysmenorrhea, amenorrhea and length of bleeding. Definitions of breakthrough bleeding and spotting varied between studies, as well as between times when these parameters were recorded. Adverse effects were also reported under the following headings: androgenicity, acne, hirsutism, weight gain, blood-pressure and haemostasis.

How were decisions on the relevance of primary studies made?
The author does not state how the papers were selected for the review, or how many of the reviewers performed the selection.

Assessment of study quality
The author does not state that they assessed validity.

Data extraction
The author does not state how the data were extracted for the review, or how many of the reviewers performed the data extraction.

Methods of synthesis
How were the studies combined?
The studies were combined narratively and the results of the individual studies were tabulated.
How were differences between studies investigated?
The author does not state how differences between the studies were investigated.

Results of the review
Seventeen studies were included (n=35,942), of which 8 were randomised (n=4,643).

Overall conclusions about the efficacy and menstrual cycle control of the newer progestins include extremely low pearl indexes, i.e. 0 to 1 per pregnancy per 100 woman-years of use, as well as improved cycle control. Rates of breakthrough bleeding and spotting with desogestrel, norgestimate and gestodene ranged from 1.1 to 53%, while for the older progestins the range was 6.6 to 18.2%. Amenorrhea was reported less frequently with the newer progestins than with the older progestins. Cycle control and incidence of bleeding problems improved during continued oral contraceptive use with all therapies in all studies. One study reported that the newer progestin-containing formulations had higher 6 and 12 month continuation rates than older products.

Cost information
No information was provided, except for the statement that the newer progestins are comparable in price to older agents.

Authors' conclusions
Desogestrel, norgestimate and gestodene appear to offer clinical advantages because of their decreased androgenicity. The newer progestins appear to be efficacious and offer similar cycle control, improved safety and tolerability profiles and comparable price with the older agents.

CRD commentary
The review question is unclear, and since the literature search was limited to one electronic database, relevant articles may have been missed. Inclusion criteria are also unclear and the studies are not assessed for validity. Some details of the study designs are listed, but in the data synthesis these details are not used to give weight to one study over another. More details of the patients included in the reviewed studies, such as age, sex, and history of oral contraceptive use, would probably have been useful. The observed differences may not be statistically- or clinically-significant, and it is unclear what the outcome would be if the study results were combined quantitatively.

The conclusions should be viewed with great caution owing to the aforementioned problems.

Implications of the review for practice and research
The author suggests that women whose cycles are currently well controlled with other oral contraceptives should not be switched to a newer progestin. However, any of the combination oral contraceptive products that contain these progestins may be prescribed for women intolerant of older agents or to first-time users of oral contraceptives. The author also suggests that diabetic women may have better glycemic control when taking the newer combination products.

Bibliographic details

PubMedID
8520092

Other publications of related interest
Burkman RT. Lipid metabolism effects with desogestrel-containing oral contraceptives. Am J Obstet Gynecol
1993;168:1033-40.

**Indexing Status**
Subject indexing assigned by NLM

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**Record Status**
This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.