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Progestogens for preventing miscarriage: a network meta-analysis (Review)

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Study Design

Objectives:

To estimate the relative effectiveness and safety profiles for the different progestogen treatments for threatened and recurrent miscarriage and provide rankings of the available treatments according to their effectiveness, safety, and side-effect profile

Selection criteria:

We included all randomized controlled trials assessing the effectiveness or safety of progestogen treatment for the prevention of miscarriage. Cluster-randomized trials were eligible for inclusion. Randomized trials published only as abstracts were eligible if sufficient information could be retrieved.

Results of study

Main results:

Our meta-analysis included seven randomized trials involving 5,682 women, and all provided data for meta-analysis. All trials were conducted in hospital settings. Across seven trials (14 treatment arms), the following treatments were used: three arms (21%) used vaginal micronized progesterone; three arms (21%) used dydrogesterone; one arm (7%) used oral micronized progesterone; one arm (7%) used 17-E-hydroxyprogesterone, and six arms (43%) used placebo.

Results of study

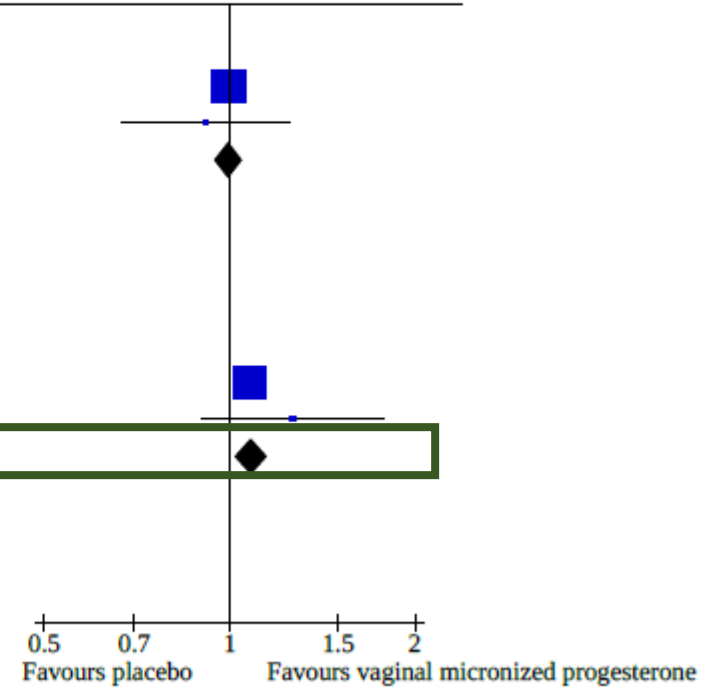
Main results:

The overall available evidence suggests that progestogens probably make little or no difference to live birth rate for women with threatened or recurrent miscarriage. ***Vaginal micronized progesterone may increase the live birth rate for women who are experiencing early pregnancy bleeding and have a history of one or more previous miscarriages***, with likely no difference in adverse events. There is still uncertainty over the effectiveness and safety of alternative progestogen treatments for threatened and recurrent miscarriage.

Results of study

Analysis 1.8. Comparison 1: Threatened miscarriage: Vaginal micronized progesterone versus placebo, Outcome 8: Live birth (subgrouped by no previous miscarriages and one or more previous miscarriages)

Study or Subgroup	Vaginal micronised progesterone Events	Total	Placebo Events	Total	Weight	Risk Ratio M-H, Fixed, 95% CI
1.8.1 No previous miscarriages and early pregnancy bleeding						
Coomarasamy 2019	824	1111	840	1127	98.8%	1.00 [0.95 , 1.04]
Gerhard 1987	10	12	10	11	1.2%	0.92 [0.67 , 1.26]
Subtotal (95% CI)		**1123**		**1138**	**100.0%**	**0.99 [0.95 , 1.04]**
Total events:	834		850			
Heterogeneity: Chi² = 0.26, df = 1 (P = 0.61); I² = 0%						
Test for overall effect: Z = 0.24 (P = 0.81)						
1.8.2 One or more previous miscarriages and early pregnancy bleeding						
Coomarasamy 2019	689	914	619	886	98.3%	1.08 [1.02 , 1.14]
Gerhard 1987	13	14	11	15	1.7%	1.27 [0.90 , 1.78]
Subtotal (95% CI)		**928**		**901**	**100.0%**	**1.08 [1.02 , 1.14]**
Total events:	702		630			
Heterogeneity: Chi² = 0.84, df = 1 (P = 0.36); I² = 0%						
Test for overall effect: Z = 2.75 (P = 0.006)						
Test for subgroup differences: Chi² = 5.03, df = 1 (P = 0.02), I² = 80.1%						



Results of study

Implications for practice:

The results of this review suggest that ***vaginal micronized progesterone may be effective in the treatment of threatened miscarriage for women with a history of one or more previous miscarriages***. The current evidence suggests that no other types of progestogen are effective at treating women with either threatened or recurrent miscarriage. ***There was no difference in congenital abnormalities and adverse drug events with vaginal micronized progesterone*** for threatened or recurrent miscarriage.