Is the levonorgestrel-releasing intrauterine system more effective than the copper IUD at preventing pregnancy?

It is slightly more effective, but both devices have a very low contraceptive failure rate, according to this multinational, prospective, noninterventional cohort study. Among 58,324 women who used one of the intrauterine devices (IUDs) for at least 12 months, a total of 118 pregnancies occurred (26 among women using the levonorgestrel-releasing intrauterine system [LNG-IUS] and 92 among women using a copper IUD). Overall Pearl indices were 0.06 (95% confidence interval [CI], 0.04–0.09) and 0.52 (95% CI, 0.42–0.64) for the LNG-IUS and copper IUD, respectively. When adjusted for age, body mass index, and parity, the hazard ratio for pregnancy during the first year of use in LNG-IUS users versus copper IUD users was 0.16 (95% CI, 0.10–0.25).

Heinemann K, Reed S, Moehner S, Do Minh T. Comparative contraceptive effectiveness of levonorgestrel-releasing and copper intrauterine devices: the European Active Surveillance Study for Intrauterine Devices. Contraception. 2015;91(4):280–283.

EXPERT COMMENTARY
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Both the LNG-IUS and the copper IUD are highly effective at pregnancy prevention. However, large-scale comparative studies are lacking. These findings from the European Active Surveillance Study for Intrauterine Devices (EURAS IUD), an investigation of new users of the LNG-IUS (20 µg/day) and copper IUD (>30 different types) in Austria, Finland, Germany, Poland, Sweden, and the United Kingdom, confirm the low contraceptive failure rate for both devices.

The primary objective of this trial was to

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FAST TRACK

The difference in contraceptive failure rates should not be the deciding factor for choosing one IUD over the other

WHAT THIS EVIDENCE MEANS FOR PRACTICE

The LNG-IUS may be a more effective contraceptive than the copper IUD, but both possess excellent contraceptive efficacy. Prospective randomized trials, although much smaller than this nonrandomized cohort study, do not demonstrate differences in contraceptive efficacy between the LNG-IUS and copper IUD.[3] The small difference in contraceptive failure rates (less than 1 in 200 women), if real, should not be the deciding factor for choosing one IUD over the other.

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compare uterine perforation rates,[1] but the results of a planned secondary analysis comparing contraceptive effectiveness may be of more interest to patients and providers.

Details of the study

Women who had a newly inserted IUD during the study period were eligible for recruitment. These women and their inserting health care provider then completed a follow-up questionnaire 12 months after enrollment to assess for pregnancy or any potential IUD complication.

In total, 61,448 women were enrolled, and 58,324 patients (41,001 using the LNG-IUS and 17,323 using the copper IUD) were included in the analysis. Only 1.7% of LNG-IUS users and 2.8% of copper IUD users were lost to follow-up. Women using the LNG-IUS were older than those using the copper IUD (mean age of 37.4 vs 33.3 years, respectively). About 43% and 24% of LNG-IUS and copper IUD users, respectively, were age 40 or older at the time of IUD insertion.

Strengths and limitations

The large sample size and low number of women lost to follow-up are strengths of this study. A major weakness: The indication for IUD insertion was not recorded. Nor was the risk of pregnancy assessed at enrollment.

Overall, the age of the study population was older than is typically found in a contraceptive efficacy trial, which generally covers the age range of 18 to 35 years.

Because women chose their type of IUD (as opposed to random allocation), variations in underlying fertility, age, and other confounders of efficacy cannot be accounted for fully with statistical analyses. The variation in age strongly suggests that women may have chosen the LNG-IUS for reasons other than contraception.

Furthermore, more than 30 types of copper IUDs were inserted during the study period, and small variations in contraceptive efficacy from one type to another may contribute to the overall difference in failure rates between the LNG-IUS and copper IUD. Although Heinemann and colleagues did perform an analysis of failure rates by copper content and found no differences between users of IUDs with less than 300 mm^2 and those with at least 300 mm^2 of copper, earlier prospective randomized trials show differences in contraceptive efficacy by device type and amount of copper.[2]

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