Intrauterine devices for adolescents: a systematic review

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CRD summary
The authors concluded that literature on intrauterine devices use in adolescents was scanty and obsolete. Published reports were generally reassuring. The authors’ conclusions reflected the evidence, but lack of reporting of review methods and study quality made it difficult to assess their reliability.

Authors’ objectives
To evaluate use of intrauterine devices (IUDs) in adolescents.

Searching
MEDLINE, EMBASE, CINAHL and POPLINE were searched from inception for studies reported in English (end search date not reported). Reference lists of articles identified using the related article function in PubMed, reviews, randomised controlled trials, editorials, commentaries and professional guidelines were screened.

Study selection
Studies that evaluated use of IUDs in adolescents (defined as from puberty to completed growth and physical maturity) were eligible for inclusion. Studies that evaluated the Dalkon Shield were excluded. Studies that included women aged up to 22 years of age were accepted due to a limited number of reports on adolescents.

Primary review outcomes were continuation of IUD use, pregnancy rates and expulsion rates. Secondary outcomes included side effects and acceptability.

Included studies evaluated a variety of different IUDs including Lippes Loop, Copper-7, Copper T, T-Cu200B and Loop C or D. The authors stated that half of the IUDs evaluated were experimental devices that were never marketed. Comparison interventions, where these existed, included combined oral contraceptives, condoms and vaginal foam. Patients ranged in age from 13 to 22 years and included nulliparous, nulligravid and parous women.

The authors did not state how papers were selected for the review.

Assessment of study quality
The authors did not state that they formally assessed validity, but they discussed potential for selection bias and external validity of studies.

Data extraction
Event rates of interest were presented in tables for each study.

The authors did not state how many reviewers performed data extraction.

Methods of synthesis
The studies were combined in a narrative synthesis.

Results of the review
Six cohort studies and seven case-series were included. Four cohort studies (n=1,489 women) and four case series (n=643 women) appeared to provide most of the results data. Number of women in the other studies was not reported. Duration of follow-up ranged from six to 48 months.

Continuation of IUD use (seven studies): Continuation rates were mostly high at one year and decreased after this. Rates at 12 months ranged from 48% to 88%. Rates at 24 months ranged from 49% to 73%. Rates at 36 months ranged from 39% to 45%. One study reported a rate of 31% at 48 months. Two controlled studies reported similar continuation
rates for IUDs and combined oral contraceptives (n=112 with IUD and n=162 with combined oral contraceptives).

**Pregnancy rates (seven studies)**: Cumulative pregnancy rates increased from 2% at six months to 11% at 48 months. One study reported pregnancy rates at 48 months of 3% for IUDs versus 0% for combined oral contraceptives (n=30 with IUD and n=72 with combined oral contraceptives).

**IUD expulsion (seven studies)**: Expulsion rates varied widely from 5% to 22% over periods that ranged from six to 48 months. Two studies reported lower rates with increasing age; no consistent relationship to parity was identified.

**Pelvic inflammatory disease (three studies)**: The authors stated that it was not possible to interpret the reported outcomes due to different definitions of genital tract infection.

**Pain at insertion**: One study with insertion of experimental W, LEM IUD and Lippes loop C and D in predominantly nulliparous women (devices no longer used at the time of the review). Severe pain was reported by 14% of women, moderate pain by 23% and minimal or no pain by 63%.

**Removal for bleeding or pain (three studies)**: Removal rates were higher in adolescents compared to parous adults (one study). Rates were similar for adolescents and older women in another study. Bleeding was more common with IUDs than combined oral contraceptives (one study).

**Authors' conclusions**
Literature on IUD use in adolescents was scanty and obsolete. Published reports were generally reassuring.

**CRD commentary**
The review question was clearly stated. Inclusion criteria were appropriately defined for intervention and participants. Primary review outcomes were specified. Use of broad criteria for study design was appropriate given the paucity of identified studies. Several relevant sources were searched, but no attempts were made to minimise publication and language biases. Methods used to select studies and extract data were not described and so it was unknown whether efforts were made to reduce reviewer errors and bias. Study validity was not assessed and so results from these studies and any synthesis may not have been reliable. In view of the differences between studies, a narrative synthesis with reporting of ranges of event rates for different time periods was appropriate. The authors’ conclusions reflected the evidence, but lack of reporting of review methods and study quality made it difficult to assess their reliability.

**Implications of the review for practice and research**
**Practice**: The authors stated that until new evidence was available, IUDs should be offered as a first-line contraception to all women (including adolescents) who had difficulty dealing with methods that required ongoing compliance.

**Research**: The authors stated that there was an urgent need for randomised controlled trials and cohort studies that compared contemporary IUDs with other contraceptive methods in adolescents.

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