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Review article

Retention of intrauterine devices in women who acquire pelvic inflammatory disease: a systematic review☆

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Abstract

Background: Women using intrauterine devices (IUDs) are not protected against acquiring pelvic inflammatory disease (PID). If a woman has an IUD in place when she is diagnosed with PID, there is a theoretical concern that presence of an IUD might impact the course of treatment. This review was conducted to evaluate the evidence regarding whether an IUD should be retained or removed if a woman develops PID.

Study Design: The PubMed database was searched from database inception through April 2012 for all peer-reviewed articles in any language concerning PID in women using IUDs. Articles were included if they examined women with IUDs who developed PID and compared the clinical course of women in whom the IUD was retained versus women in whom the IUD was removed. Articles were excluded if the infection was diagnosed before or at the time of IUD insertion. The quality of each study was assessed using the United States Preventive Services Task Force grading system.

Results: Four fair-quality studies met inclusion criteria for this review. One randomized controlled trial showed that women with IUDs removed had longer hospitalizations than those with IUD retention (15% versus 4%, $p<.01$), although there were no differences in PID recurrences or subsequent pregnancies. Another randomized controlled trial showed no differences in laboratory parameters among women who retained the IUD when compared with women in whom the IUD was removed. One prospective cohort study showed that there were no differences in clinical or laboratory parameters during hospitalization; however, the IUD removal group had a higher proportion hospitalized for more than 2 weeks compared with the IUD retention group (33% versus 19%, $p<.05$). One randomized controlled trial showed that women who had the IUD removed experienced improved recovery in most clinical signs and symptoms compared with women who retained the IUD.

Conclusions: Three fair-quality studies showed no difference in clinical or laboratory outcomes among women who retained IUDs when compared with women who had IUDs removed, and two of these studies showed that women who had IUDs removed had longer hospitalizations. In contrast, one fair quality study showed improved clinical signs and symptoms among women who had IUDs removed. Overall, women who retained their IUDs had similar or better outcomes than women who had their IUDs removed.

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Keywords: Intrauterine device; Pelvic inflammatory disease; Systematic review

1. Introduction

Intrauterine devices (IUDs) are safe, long-acting and highly effective methods of contraception. However, they do not provide protection against pelvic inflammatory disease (PID). Sequelae of PID can include ectopic pregnancy, tubal factor infertility and chronic pelvic pain [1]. Prompt antimicrobial treatment is important to minimize the negative sequelae of pelvic infections. If a woman has an IUD in place

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Table 1
Evidence for removal versus retention of an IUD in women who develop PID

Author, year, location	Study design	Population	IUD type(s)	Outcomes	Results	Strengths	Weaknesses	Quality
Larsson and Wennergren [6], 1977 Sweden	Randomized controlled trial	928 women admitted to hospital with PID divided into 3 groups: Group I: no IUD, N=632 Group II: Cu IUD left in place, N=236 Group III: Cu IUD removed on admission, randomly selected, *N*=60 184 women followed for 18 months for recurrence and pregnancy rates: Group I: no IUD, N=121 Group II: Cu IUD left in situ, N=46 Group III: Cu IUD removed before treatment, N=17 PID diagnosis: palpable tender adnexal mass, ESR ≥15 mm/h, lower abdominal pain, fever All women treated with antibiotics	Cu IUD	Percentage with 1, 2 and ≥3 weeks hospital stays PID recurrence and subsequent pregnancies	Number and percentage with 1, 2 or ≥3 weeks hospital stay: 1 wk / 2 wks / ≥3 wks Group I: 276 (46%) / 313 (50%) / 43 (7%) Group II: 87 (37%) / 139 (59%) / 10 (4%)* Group III: 24 (40%) / 27 (45%) / 9 (15%) * p<.01 when compared with Group III. Number and percentage with recurrence and subsequent intrauterine pregnancies: Recurrences / Pregnancies Group I: 11 (9%) / 15 (12%)* Group II: 4 (9%) / 0 Group III: 2 (12%) / 3 (18%)* *Percentage calculated by systematic review authors, differs from percentage reported by study authors.	Long follow-up for some women Performed intention-to-treat analysis	Randomization for IUD removal not described Distribution of covariates at baseline not reported Small number of women followed for 18 months No description of women who were followed for 18 months P-value not stated for comparison of recurrence and pregnancies between groups	I, fair
Soderberg and Lindgren [3], 1981 Sweden	Randomized controlled trial	53 women with IUD hospitalized for acute salpingitis randomized to 2 groups (7 left study): Group A: IUD left in place, N=23 Group B: IUD removed before treatment, N=23 PID diagnosis: acute pelvic pain, adnexal tenderness, increased ESR during hospitalization ≥40 mm/h All women treated with pivampicillin/doxycycline	Cu IUD, Plastic IUD, Unknown	Mean days from admission to peak ESR Mean days from peak ESR to half of peak value Treatment failures or rehospitalizations within 3 months	Mean days from admission to peak ESR: Mean days (SD) Group A: 3.0 (1.8) Group B: 3.2 (1.7) Mean days from peak ESR to half of peak value: Mean days (SD) Group A: 8.2 (3.5) Group B: 8.0 (2.8) No treatment failures or rehospitalizations within 3 months in either group	Use of objective criteria Performed intention-to-treat analysis	Randomization not described Distribution of covariates at baseline not reported (with the exception of age) Low and comparable attrition rate between groups Clinical course not reported Small number of women	I, fair