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Original article

Association of Anticipated Insertional Pain With Intrauterine Device Initiation

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A B S T R A C T

Purpose: Many providers cite pain as a barrier to intrauterine device (IUD) initiation. Our objective was to determine if young women who initiate other contraceptive methods anticipate more pain with IUD insertion than those who initiate IUDs.
Methods: In this prospective cohort study, we enrolled women ages 14–24 initiating contraception at a family planning clinic. Participants rated expected pain with IUD insertion on a 0–10 scale. IUD and implant initiators additionally rated experienced pain and whether they would recommend their method, both after procedure and at 6 months. We compared anticipated pain between IUD and other contraceptive initiators. For IUD and implant initiators, we compared pre- and postprocedure pain.
Results: Of 172 participants, 29% initiated IUDs, 30% initiated implants, and 41% initiated other methods. The median age was 20 years (range 14–24), participants were racially diverse (39.5% white, 40.1% Hispanic, 11.0% black, 9.3% other), and 92% were nulliparous. IUD initiators were older and more likely to be white. The median pain anticipated with IUD insertion was similar among IUD (6.0, range 0–10), implant (5.0, range 0–10), and other contraceptive initiators (6.0, range 2–10) ($p = .65$). IUD initiators reported higher pain than expected (7.0, range 1–10) ($p = .004$), yet most recommended the IUD after procedure and at 6 months (78% and 74%, respectively).
Conclusions: Insertional pain may not be a barrier to IUD initiation. Women initiating other contraceptives anticipated similar pain with insertion than those initiating IUDs. IUD initiators experienced higher pain than expected, but most still recommended the method.

IMPLICATIONS AND CONTRIBUTION

Prior studies assert that pain is a barrier to IUD use; this study challenges that assumption. Whereas pain interventions may improve patient experience, they are unlikely to significantly impact IUD initiation rates. Attempts to improve initiation rates should focus on other well-established barriers.

Despite the availability of safe and highly effective contraceptive options, unintended pregnancy continues to be a public health concern in the United States, particularly among adolescents and young adult women [1–3]. Numerous studies have demonstrated that adolescents and young adult women who select long-acting reversible contraception (LARC), such as the intrauterine device (IUD) and implant, are more likely than their peers to continue their method, resulting in lower abortion rates and unplanned birth rates [4,5]. Recently, there has been an increase in the percentage of women using LARC methods, and this has been primarily driven by an increase in IUD uptake; between 2009 and 2012, the LARC rate increased from 8.5% to 11.6%, with

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We obtained approval to conduct this study from the Colorado Multiple Institutional Review Board.
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IUD use increasing from 7.7% to 10.3% [6]. Despite this, LARC is underutilized among adolescents; between 2011and 2013, only 3.2% of sexually active teenagers who used contraception relied on LARC, a rate that remained similar over the previous 5 years [7–9]. Adolescents and young adult women face several barriers to LARC uptake, including inadequate knowledge, provider practices, upfront cost, and concerns about pain [4,10–20].

Although there are several reasons cited in the literature about barriers to initiation of IUD, concern over pain as a barrier has served as the basis for several pain intervention studies, few of which have demonstrated reduction in pain during insertion [10–17]. Recent literature suggests that a paracervical block may improve patient pain, but the study itself questions whether the risk-benefit profile of paracervical blocks supports routine use [17]. A previous study found that the strongest predictor of IUD initiation among young women was recommendation of the method by a friend [21]. It is unclear, however, whether the expectation of pain during insertion of IUD results in lower IUD initiation or whether the experience of pain results in lower IUD continuation or recommendation to friends. The primary objective of our study was to delineate whether the expectation of pain with IUD insertion affects initiation rates. We hypothesized that young women who decided to initiate other contraceptive methods would expect more pain with IUD initiation than those who decided to initiate IUDs. We secondarily hypothesized that among IUD initiators, those who reported higher levels of pain with insertion than they anticipated would be less likely to continue and/or recommend the IUD.

Methods

In this prospective cohort study, we approached all female patients between ages 14 and 24 years who presented for a contraceptive initiation visit to the Children's Hospital Colorado adolescent family planning clinic (BC4U) for study participation. The Colorado Multiple Institutional Review Board approved this study. Minors were allowed to consent based on the low-risk nature of the study and because they can consent to contraceptive health care without parental consent in the state of Colorado. We excluded individuals who could not speak English or Spanish, reported prior IUD use, or were visiting the clinic for reasons other than contraception initiation. Among eligible patients, we explained the nature of the study and obtained written informed consent. All participants who consented to participation agreed to pre- and postvisit surveys and to be contacted for a 6-month follow-up survey should they initiate an implant or IUD. The primary investigator abstracted relevant participant demographic data from the electronic medical record and directly entered these data into a secure electronic database (REDCap); the data were reviewed twice to ensure accuracy and consistency.

The primary investigator and a single research assistant administered an in-person, scripted verbal survey with each participant in a private location. This visit occurred before the participant's clinical visit to elicit preconceived views of insertional pain before any counseling. All family planning providers at the clinic agreed to allow their patients to participate in the study and held their patient visits following the previsit survey. We recorded responses and later abstracted them to the REDCap electronic database. Regardless of which method participants were interested in obtaining upon presentation, everyone was asked to rate the pain they anticipated for insertion of an IUD and for insertion of an etonogestrel implant. Each participant rated her anticipated pain on a 0–10 verbal ordinal scale, with 0 defined as no pain and 10 as the worst pain possible. We also asked if they had ever had a family member, friend, or health-care worker describe pain associated with insertion of an IUD or implant.

Next, the study participants had their contraceptive initiation visit. At this site, five providers provided care to our participants. All providers were similarly trained and often counsel patients that the IUD insertion will be "five minutes with three big cramps similar to severe menstrual cramps." They also explain that patient experience can range from mild cramps to severe cramps, with possible dizziness or vomiting.

Following the clinical visit, the research assistant administered a postvisit, in-person, verbal survey to record which method the participant initiated. If the participant initiated an IUD or implant, she was asked to rate the pain she experienced during insertion using the same 0–10 verbal ordinal scale. During the postvisit in-person survey, we asked whether participants who selected an IUD or implant would recommend their method to a friend. The 6-month follow-up survey queried if the participants had continued their method and if they would recommend it to a friend. We sent text messages and emails with a link to the follow-up survey, which followed the same script and format as the verbally administered telephone surveys.

Our primary hypothesis was that women who initiated IUDs expected less pain than those who initiated either the contraceptive implant or any short-acting method. We assumed that most women in our group would report no prior pregnancies given the age range of the clinic populations. To estimate our sample size, we assumed a mean pain score with IUD insertion of approximately 5 on a 0–10 visual analog scale (VAS) and a standard deviation of 2, based on Edelman et al.'s study of nulliparous women initiating IUDs [21]. We used a two-sided test as it is possible that young women initiating IUDs anticipate more or less pain than those who do not. Using an alpha of .05, power of .80, and assuming a loss to follow-up rate of 30%, we determined that we would need to enroll 50 participants who selected an IUD, 50 who selected an implant, and 50 who selected a short-acting method.

We used IBM SPSS version 23 for data analyses (IBM Corp., Armonk, NY). We computed descriptive statistics and tests of normality (for continuous variables). We compared participant characteristics of IUD initiators and noninitiators using Student *t*-tests or median tests for continuous variables and chi-square or Fisher exact test for categorical variables as appropriate. To compare anticipated median pain scores across the three contraceptive groups (IUD initiators vs. implant initiators vs. SARC initiators) we used analysis of variance or median tests as appropriate. We compared anticipated pain with insertion of IUD and implant to experienced pain using a paired median test. We used median tests rather than paired *t* tests because pain scores were not normally distributed. We compared rates of recommendation between IUD and implant initiators using chi-square test. We compared rates of IUD recommendation based on whether the participants had a higher pain score than anticipated or the participants had a similar or lower pain score than anticipated using chi-square analysis.

Results

Between December 2015 and March 2016, we approached 257 individuals; 195 were eligible to participate and 172 enrolled (Figure 1). We proceeded with enrollment using consecutive convenience sampling, and thus, the sample collected represented