ELSEVIER

Contraception xx (2015) xxx–xxx

Contraception

Original research article

Pharmacy claims data versus patient self-report to measure contraceptive method continuation☆

Jourdan E. Triebwasser*, Stephanie Higgins, Gina M. Secura, Qiuhong Zhao, Jeffrey F. Peipert

Washington University in St. Louis School of Medicine Department of Obstetrics and Gynecology, Division of Clinical Research, 660 South Euclid Avenue Campus Box 8064, St. Louis, MO 63108, USA

Received 5 December 2014; revised 30 March 2015; accepted 30 March 2015

Abstract

Objective: To compare self-reported 12-month continuation of oral contraceptive pills (OCPs), patch, and ring versus continuation by pharmacy claims data.

Study design: Women in the Contraceptive CHOICE Project who chose OCPs, the patch, or the ring as their initial method were included. Continuation was assessed by periodic telephone survey and by obtaining prescription claims data. Continuation was defined as no gap of more than 30 days. Kaplan–Meier survival functions were used to estimate continuation rates and cumulative unintended pregnancy rates. Kappa statistic assessed the level of agreement between self-report and claims data.

Results: We analyzed 1510 women who initiated use by 3 months and provided information on discontinuation. Of OCP users, 59% continued their method at 12 months by self-report versus 38% by pharmacy claims. Patch and ring users had self-reported/pharmacy continuation of 45%/28% and 57%/37%, respectively. Kappa coefficients and their 95% confidence intervals between the two measurements were 0.46 (0.40, 0.52), 0.54 (0.39, 0.68), and 0.54 (0.47, 0.61) for OCP, patch, and ring, respectively. Among women who self-reported continuation, unintended pregnancy rates were 0.4% in those who continued by pharmacy claims versus 4.9% in those who discontinued according to claims data.

Conclusion: Contraceptive continuation rates differ by self-report versus pharmacy claims with women overestimating their continuation by self-report.

Implications: This article directly compares contraception continuation rates by self-report and by pharmacy claims data. The study suggests that previously reported continuation rates from survey data overestimate specific method use.

Keywords: Contraceptive continuation; Contraceptive patch; Contraceptive ring; Oral contraceptive pill; Pharmacy claims

1. Introduction

Half of all unintended pregnancies in the United States are the result of contraceptive failure or misuse [1]. While combined hormonal contraceptives have high efficacy rates in clinical trials, failure rates with typical use are approximately 9% per year [2]. Many of these failures are related to method discontinuation [3]. Additionally, women who discontinue combined hormonal contraceptives are more likely to switch to less-effective methods of contraception, including no method, putting them at even greater increased risk of unintended pregnancy [4,5].

Although sequelae of contraceptive discontinuation are well known, current methods of assessing discontinuation patterns may be inaccurate. Most studies have relied on patient self-report, with 12-month continuation rates ranging from 53% to 67% for oral contraceptive pills (OCPs) and

☆ Acknowledgement of financial support: The Contraceptive CHOICE Project is funded by an anonymous foundation. This publication also was supported by the Washington University Institute of Clinical and Translational Sciences grant UL1 TR000448 from the National Center for Advancing Translational Sciences. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health. Dr. Peipert receives research funding from Bayer, Teva, and Merck and serves on advisory boards for Teva Pharmaceuticals, Bayer Healthcare Pharmaceuticals, and MicroCHIPS.

* Corresponding author. Washington University in St. Louis School of Medicine, 660 South Euclid Avenue Campus Box 8064, St. Louis, MO 63110, USA. Tel.: +1-314-362-1016; fax: +1-314-747-1490.

E-mail addresses: triebwasserj@wudosis.wustl.edu (J.E. Triebwasser), higginss@wusm.wustl.edu (S. Higgins), zhaoq@wudosis.wustl.edu (Q. Zhao), peipertj@wudosis.wustl.edu (J.F. Peipert).

http://dx.doi.org/10.1016/j.contraception.2015.03.016
0010-7824/

continuation rates of 42–54% and 26–49% reported for contraceptive ring and patch, respectively [5–9]. A few studies have compared self-reported measurement of OCP use to more objective measures of usage including electronic pill monitoring and blood hormone levels, but these methods are difficult to reproduce in large cohorts [10,11]. Analysis of a large US pharmaceutical database demonstrated low rates (26–29%) of uninterrupted contraceptive use for OCPs, patch, and ring at 1 year [12]. However, large database studies are limited by the lack of correlated clinical data. Studies have additionally been limited by lack of consistently defined terminology [7].

To further understand patterns of contraception continuation, we analyzed continuation at 12 months among Contraceptive CHOICE Project participants using OCP, patch, or ring. We compared self-reported continuation rates to pharmacy claims data. Given lower continuation rates in pharmacy claims studies compared to survey-based studies, we hypothesized that women in our study would overestimate their continuation compared to pharmacy records [5–9,12]. We further analyzed the subgroup of women who self-reported continuation and compared rates of unintended pregnancy between women whose pharmacy records indicated continuation versus those whose records indicated discontinuation.

2. Materials and methods

The Contraceptive Choice Project (CHOICE) is a prospective cohort study that sought to decrease unintended pregnancy rates in the St. Louis region by providing no-cost reversible contraception as described previously [13]. Women in the study were 14–45 years of age, sexually active with a male partner in the past 6 months or planning to be sexually active in the next 6 months; at risk of unintended pregnancy (no permanent sterilization or hysterectomy) with no plans for pregnancy in the next 12 months; residents of the St. Louis region; and willing to start a new form of reversible contraception. Baseline demographic characteristics, reproductive history, and sexual behaviors were captured at time of enrollment. All women who enrolled received standardized contraceptive counseling on reversible contraceptive methods and baseline sexually transmitted infection (STI) testing. Follow-up telephone interviews were conducted at 3, 6, and 12 months after enrollment. The study was approved by the Washington University in St. Louis School of Medicine Human Research Protection Office and all participants provided written informed consent.

Of the 1686 women enrolled in CHOICE who chose OCPs, patch, or ring at baseline, 1510 women (90%) initiated use by 3 months and provided information on discontinuation. To mimic many insurance plans available in Missouri, participants were required to fill their prescriptions on a monthly basis without charge or copay at a local family planning clinic or one local grocery chain (82 locations) by presenting CHOICE ID cards. The grocery chain and the clinic sent claims data documenting the dispense date for contraceptive method refill to study staff at the end of each month.

To assess continuation from survey data, participants were asked, “Are you still using the method?” and “Did you ever stop using the method?” The start month and year were recorded. If the participants reported stopping the method, the stop month and year were recorded, also restart month and year if any. Continuation was defined as contraceptive use throughout the 12-month interval with no gap of use of 1 month or longer. It is considered a method stop if participant switched to a different contraceptive method. To measure continuation by claims data, we obtained contraception start and stop dates from participants’ pharmacy records. The contraceptive start date represented the dispense date, and the stop date was coded as 28 days after the dispense date. Patients were counted as continuing their contraceptive method if the gap between a stop date and subsequent start date was 30 days or less. We censored participants who were lost to follow-up at the time of their last contact.

We used ANOVA for continuous variables and χ^2 for categorical variables to compare baseline characteristics among OCP, patch, and ring users. Kaplan–Meier survival functions were used to estimate the probability of surviving the event (method discontinuation or unintended pregnancy) by certain time point, from which we calculated continuation rates and cumulative unintended pregnancy rates. We constructed 2×2 tables comparing continuation by survey versus pharmacy data and calculated Cohen’s kappa coefficient to measure the agreement between survey and pharmacy claims data on continuation status. Level of agreement by kappa statistic was based on guidelines by Landis and Koch [14]. Baseline characteristics of patients who were continuers by survey were stratified by whether or not they were also continuers by pharmacy claims data. We used Poisson regression to evaluate the relative risk of discontinuation because discontinuation was a common outcome. We used a stepwise selection process to identify factors associated with a discrepancy in continuation status among women who self-reported continuation yet their pharmacy claims data suggested discontinuation.

3. Results

Baseline characteristics of OCP (n=769), patch (n=153), and ring (n=588) users are presented in Table 1. There were significant differences between the groups in terms of race, socioeconomic status, and past reproductive history. Patch users were significantly more likely than OCP and ring users to require public assistance ($p<.01$) and to be uninsured ($p<.01$). Patch users had more previous unintended pregnancies ($p<.01$) and were significantly more likely to have had an abortion ($p<.01$).

Continuation rates at 12 months by self-report were 59%, 45%, and 57% for OCP, patch, and ring, respectively.