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# Prior uterine evacuation of pregnancy as independent risk factor for preterm birth: a systematic review and metaanalysis

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## Abstract

**Background:** Preterm birth (PTB) is the number one cause of perinatal mortality. Prior surgery on the cervix is associated with an increased risk of PTB. History of uterine evacuation, by either induced termination of pregnancy (I-TOP) or spontaneous abortion (SAB), which involve mechanical and/or osmotic dilatation of the cervix, has been associated with an increased risk of PTB in some studies but not in others.

**Objective:** The objective of the study was to evaluate the risk of PTB among women with a history of uterine evacuation for I-TOP or SAB.

**Data sources:** Electronic databases (MEDLINE, Scopus, ClinicalTrials.gov, EMBASE, and Sciencedirect) were searched from their inception until January 2015 with no limit for language.

**Study eligibility criteria:** We included all studies of women with prior uterine evacuation for either I-TOP or SAB, compared with a control group without a history of uterine evacuation, which reported data about the subsequent pregnancy.

**Study appraisal and synthesis methods:** The primary outcome was the incidence of PTB < 37 weeks. Secondary outcomes were incidence of low birthweight (LBW) and small for gestational age (SGA). We planned to assess the primary and the secondary outcomes in the overall population as well as in studies on I-TOP and SAB separately. The pooled results were reported as odds ratio (OR) with 95% confidence interval (CI).

**Results:** We included 36 studies in this metaanalysis (1,047,683 women). Thirty-one studies reported data about prior uterine evacuation for I-TOP, whereas 5 studies reported data for SAB. In the overall population, women with a history of uterine evacuation for either I-TOP or SAB had a significantly higher risk of PTB (5.7% vs 5.0%; OR, 1.44, 95% CI, 1.09-1.90), LBW (7.3% vs 5.9%; OR, 1.41, 95% CI, 1.22-1.62), and SGA (10.2% vs 9.0%; OR, 1.19, 95% CI, 1.01-1.42) compared with controls. Of the 31 studies on I-TOP,28 included 913,297 women with a history of surgical I-TOP whereas 3 included 10,253 women with a prior medical I-TOP. Women with a prior surgical I-TOP had a significantly higher risk of PTB (5.4% vs 4.4%; OR, 1.52, 95% CI, 1.08-2.16), LBW (7.3% vs 5.9%; OR, 1.41, 95% CI, 1.22-1.62), and SGA (10.2% vs 9.0%; OR, 1.19, 95% CI, 1.01-1.42) compared with controls. Women with a prior medical I-TOP had a similar risk of PTB compared with those who did not have a history of I-TOP (28.2% vs 29.5%; OR, 1.50, 95% CI, 1.00-2.25). Five studies, including 124,133 women, reported data about a subsequent pregnancy in women with a prior SAB. In all of the included studies, the SAB was surgically managed. Women with a prior surgical SAB had a higher risk of PTB compared with those who did not have a history of SAB (9.4% vs 8.6%; OR, 1.19, 95% CI, 1.03-1.37).

**Conclusion:** Prior surgical uterine evacuation for either I-TOP or SAB is an independent risk factor for PTB. These data warrant caution in the use of surgical uterine evacuation and should encourage safer surgical techniques as well as medical methods.

**Keywords:** abortion; delivery; miscarriage; preterm termination of pregnancy.



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