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ORIGINAL ARTICLE

Evaluating the effect of cervical dilatation prior to operative hysteroscopy to the week of subsequent delivery

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KEYWORDS

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Abstract *Introduction:* Nowadays diagnostic and operative hysteroscopy is an integral part of infertility workup. For the operative interventions dilatation of the cervix is needed. The aim of this study was to evaluate the effect of cervical dilatation on the later obstetrical outcome.

Methods: 1975 Operative hysteroscopy procedures were studied of a 10-year period in the two departments. 66 Patients with any kind of obstetrical events after hysteroscopy were enrolled. Groups were created based on obstetrical history and type of surgery. Week of delivery was analyzed in each group. Data were statistically compared to controls without previous hysteroscopic operation.

Results: There was no significant difference between the week of delivery of the hysteroscopy and control group patients. Also no statistical difference was found between week of delivery of groups created on the base of neither obstetrical history nor type of surgery.

Conclusions: Patients who have operative hysteroscopic intervention with cervical dilatation prior to their pregnancy irrespectively of their previous obstetrical history have no increased risk for preterm delivery because of the cervical dilatation.

1. Introduction

Hysteroscopy has become more frequent intervention in the recent years among patients with infertile symptoms. Infertility workup usually contains an evaluation of the uterine cavity. Abnormal intrauterine findings have been found 34–62% in infertile women (1). Due to the technical improvements of the last two decades this evaluation can be performed in an outpatient setting without cervical dilatation (2).

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The most frequent intrauterine pathologies are endometrial polyps, submucous fibroids, septate uterus and intrauterine adhesions. Most of them can be treated by operative hysteroscopy but this procedure requires cervical dilatation (3). Resection of these lesions may have positive effect on fertility and it is improving the obstetrical outcome significantly (4,5). After transcervical resection of submucous fibroids decreasing number of miscarriage and increasing take home baby rate can be detected (4). Endometrial polyps can affect conceiving and pregnancy loss, too. Improving these indicators, hysteroscopic polypectomy should be advised, especially prior to IVF-ET (6). Resection of uterine septa does not affect conceiving, but has severe impact on decreasing the possibility of pregnancy loss (7). Intrauterine adhesions can be detected more frequently among consecutive miscarriage patients. Adhesiolysis improves the results of these cases (8).

Traditionally the cervical dilatation, which is needed for the operation, is performed with Hegar's dilators, which is an effective and quick, but probably harmful method. The procedure requires anesthesia and operating theater. However there are no available data in connection with the cervical injury during this process. The structure of the cervix can be damaged during dilatation which can influence the outcome of subsequent pregnancy. According to our best knowledge, there is no publication dealing with the influence of the dilatation of the cervix prior to operative hysteroscopy on subsequent delivery. Some review can be found about correlation between the induced abortion and subsequent obstetrical events. However cervical dilatation during the abortion is not the only factor that effects the outcome of subsequent pregnancy. The evidence for an association between preterm delivery and induced abortion is conflicting (9). Some review states, that there is no increased risk of preterm delivery after induced abortion (10). Some systematic review suggests that patients, undergone induced abortion are at higher risk for preterm delivery (11,12).

The aim of our study was to evaluate the effect of cervical dilatation prior to resectoscopy in outcome of those pregnancies which conceived after the operative hysteroscopic procedure.

2. Materials and methods

All the operative hysteroscopy cases were collected retrospectively which were performed between 2001 and 2010 in the Departments of Obstetrics and Gynecology of University of Debrecen Medical and Health Science Center, and in Kenézy Hospital. Population which's healthcare is responsible for these two departments is approximately 450.000 people. Four types of operative interventions were focused on. Transcervical resection of myoma, resection of polyp, resection of septum and adhesiolysis belonged to the operative intervention. During the operations resectoscope (Storz, Germany) was used with a 4 mm 30 degree optic with an 11.5 mm sheath. The electrosurgical system had a 5 mm diameter 0 degree (for septotomy and adhesiolysis) and 90 degree electrode (for polypectomy and myomectomy). Monopolar technique was used with the output of 60–100 W. For the distension 1.5% Glycin was used with an inflow pressure of 80–100 mmHg. All interventions were performed under general anesthesia. For cervical dilatation up to 11.5 mm, Hegar's dilators were used without preoperative preparation.

We enrolled those patients into the study that had any kind of obstetrical events after the hysteroscopy. No cases were ruled out because of the type of the delivery, multiple pregnancies, induction of the labor on fetal or maternal indication. Mean BMI of hysteroscopy (HSC) patients was 28.36 (SD 4.48), in the control group 27.85 (SD 4.18). There is no significant difference.

Unadjusted between-groups comparisons of continuous variables were made using Student's two-sample t test or Wilcoxon's rank-sum test, subject to normality assumptions being satisfied. Fisher's exact test was used for the same purpose with categorical variables. Analysis adjusted for age was based on linear regression. Separate models were fitted for each explanatory variable. The models included a quadratic term for age, and an interaction term between age and the key explanatory variable. The high negative skewness in the distribution of week of delivery was corrected by a 9th-power transformation. Between-groups effects were expressed as a function of age (at values conveniently covering the HSC subjects' observed age range) in terms of point estimates and 90% confidence intervals on the original scale; dilatation was assumed not to have a prolonging effect on pregnancy (one-sided approach). Age-specific preterm limits were calculated as the difference between 37 (i.e. the number of weeks before which delivery qualifies as preterm) and the model-fitted values of controls' week of delivery. P values <0.05 were considered to indicate significance, and 90% confidence intervals entirely above the preterm limit were considered to indicate equivalence. Models were checked using the Breusch-Pagan/Cook-Weisberg test for heteroskedasticity and Ramsey's regression specification-error test for omitted variables.

3. Results

Between 2001 and 2010 in University of Debrecen Medical and Health Science Center, Department of Obstetrics and Gynecology and in Department of Obstetrics and Gynecology, Kenézy Hospital, Debrecen, 1975 operative hysteroscopy procedures were occurred. Out of 1975 cases documentation of 69 patients with obstetrical event after the operation was available. One patient had an artificial abortion, and 2 had miscarriage at the 18th and the 22nd gestational week, resulting in exclusion of 3 cases. Control group made out of 1000 consecutive deliveries at the same institute with no exclusion criteria was used and compared with the examined group ($n = 66$). Out of the 66 patients 22 were nulliparous and nulligravid, 24 were nulliparous but not nulligravid and 20 were non-nulliparous. In 7 cases adhesiolysis, in 27 cases resection of septum, in 22 cases resection of polyp and in 10 cases enucleation of fibroid were performed. Mean age of hysteroscopy group patients was 29.4 (SD = 4.97) and of control group ones was 32.5 (SD = 3.85) years; the difference was significant (t test, $p < 0.0001$). Thirty-four (51.5%) deliveries in the hysteroscopy versus 364 (36.4%) in the control group were Cesarean sections ($p = 0.018$), which were performed predominantly (~70%) due to fetal indications in both groups. Premature rupture of membranes occurred in 14 (21.2%) and 240 (24%) cases in the HSC and control groups, respectively

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