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Research Article

**RISK OF ECTOPIC PREGNANCY IN PREVIOUS INDUCED
ABORTION**¹Dr Hamza Akhtar, ²Dr Ehtisham Saleem, ³Dr Muhammad Fareed Ahmed,⁴Dr Aman Ullah Tariq.^{1,2,3,4}MBBS, Central Park Medical College, Lahore**Article Received:** February 2020**Accepted:** March 2020**Published:** April 2020**Abstract:**

The incidences of ectopic pregnancies in the developed countries have been increased from three to four times throughout the past 20 years. Whereas in the current time the rate of ectopic pregnancies reported is 1.5%. Regardless of achieving advancement in the diagnosis and treatment of ectopic pregnancy it has been still the major cause of maternal death in their first trimester. Ectopic pregnancy has some serious consequences it leads to reduction in fertility and there is 20% chance of recurrence with 20-40% chance of ultimate infertility. Cases included in the study were women with a diagnosis of ectopic pregnancy confirmed by laparoscopy or laparotomy, admitted to general hospitals. A total of 158 patients (median age 32 years, range 18-43) were enrolled into the study. The first control group (obstetric controls) included women who gave birth at term (more than 37 weeks gestation) to healthy infants at the same hospitals where the cases had been identified. The control subjects were chosen in randomly selected days within 1 month of case ascertainment. A total of 243 controls (median age 31 years, range 17-44) were interviewed during the study period and were included in this analysis. This study shows an increased risk of ectopic pregnancy after induced abortion. However, the confidence intervals of relative risk estimates were large, and the lower confidence limit was close to unity, particularly for nonobstetric controls. Thus, in consideration of the potential bias related to selective mechanisms, caution is necessary in the interpretation of the results.

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INTRODUCTION:

The incidences of ectopic pregnancies in the developed countries have been increased from three to four times throughout the past 20 years. Whereas in the current time the rate of ectopic pregnancies reported is 1.5%. Regardless of achieving advancement in the diagnosis and treatment of ectopic pregnancy it has been still the major cause of maternal death in their first trimester.² Ectopic pregnancy has some serious consequences it leads to reduction in fertility and there is 20% chance of recurrence with 20-40% chance of ultimate infertility. The risk factors associated with ectopic pregnancy are inflammatory disease, smoking at the time of conception, pelvic surgery, previous use of an intrauterine device, and induced ovulation.^{4,5} The use of intrauterine device is also linked with ectopic pregnancy, because it drops the risk of uterine pregnancy but increases the risk of ectopic pregnancy.⁶ A study conducted in French has stated that in one third ectopic pregnancies there is no absolute risk factor identified contributing to ectopic pregnancy.

In the framework of research on other risk factors, we investigated the role of previous reproductive outcomes (previous ectopic pregnancy and previous spontaneous and induced abortions) in terms of the risk of subsequent ectopic pregnancy. The results regarding to previously induced abortions are still under debate. Previously stated studies have less in favor with the conclusion only oldest studies have shown a strong association between 2 events.¹² But all these studies were carried out in countries where induced abortion was illegitimate. So, the conclusions are not much favorable. There could be many cases of under-saturated or high incidence of infectious complications that leads to the cause of following ectopic pregnancy.

Many of the recent studies have showed no remarkable association however they have not included more studies in favor of statistical power.¹⁴ So the irrelevant results do not come up with any strong evidence.

MATERIALS AND METHODS:

Cases included in the study were women with a diagnosis of ectopic pregnancy confirmed by laparoscopy or laparotomy, admitted to general hospitals. A total of 158 patients (median age 32 years, range 18-43) were enrolled into the study. The first control group (obstetric controls) included women who gave birth at term (more than 37 weeks gestation) to healthy infants at the same hospitals where the cases had been identified. The control subjects were chosen in randomly selected days within 1 month of case ascertainment. A total of 243 controls (median age 31 years, range 17-44)

were interviewed during the study period and were included in this analysis. Cases and controls were not strictly matched for age, but adjustment in the final analysis provided adequate allowance for potential differences in the age distribution. Furthermore, care was taken to obtain a comparable age distribution, performing regular comparison of cases and control distribution according to this variable.

The second control group (non-obstetric controls) was a random sample of women interviewed in the same calendar period in a case control study of risk factors for benign and malignant gynecological diseases. Included as controls in this study were women admitted to the same network of hospitals where cases had been identified for diseases other than malignant, hormonal, or gynecological in origin. They had not undergone hysterectomy or bilateral oophorectomy. From the overall data set, 158 subjects (median age 31 years, range 18-44) with a ratio of 1:1 with cases, were randomly extracted within strata of age of the patients and calendar year of interview. Of these, 26% were admitted for traumatic conditions (mostly fractures and sprains), 27% had non-traumatic orthopedic disorders (mostly low back pain and disc disorders), 20% were admitted for acute abdominal diseases that required surgery, and 27% had other illnesses such as disorders of the ear, nose and throat, or teeth. Trained interviewers used a standard questionnaire to obtain information on personal characteristics and habits, and gynecological and obstetric history. Cases and obstetric controls were asked about their smoking habits when they became aware of being pregnant. In addition, specific information was obtained regarding previous episodes of pelvic inflammatory diseases (PID)/salpingitis requiring medical consultation or treatment. On average, less than 3% of eligible women refused to be interviewed.

RESULTS:

Cases were more frequently nulliparae and reported more frequently miscarriages, history of PID/salpingitis and smoking than both control groups. No significant difference emerged between cases and controls with reference to education. A total of 32 out of 168 (22%) cases reported one or more previous induced abortions; the corresponding figures were 25 out of 250 (12%) obstetric controls, and 26 out of 150 (18%) non-obstetric ones. The risk of ectopic pregnancy was higher in women reporting induced abortions (one or more): the estimated multivariate relative risks were 2.8 in comparison with obstetric controls and 2.5 in comparison with non-obstetric controls. The risk of having induced abortions increase in comparison with women with no induced abortion, 13.1 and 3.8 in women reporting more than two

induced abortions when the comparison groups were respectively obstetric and non-obstetric controls. Multivariate relative risks were higher than crude ones. The difference between crude and multivariate relative risks was more marked when the comparison group was non-obstetric controls. This finding was explained by the imbalance in the distribution of considered covariates between the two groups. The major modifying factor was parity. For 1842 example the relative risks adjusted for age only for 3=2 induced abortions were 5.5 (95% CI 1.5-20.6) and 1.3 (95% CI 0.5- 3.6) for obstetric and non-obstetric controls. The estimates, however, were 9.9 (95% CI 2.2-36.1) and 2.3 (95% CI 0.7- 7.4) when all the covariates less than parity were entered in the model. The relationship between induced abortion and risk of ectopic pregnancy was further analyzed in strata of selected covariates. There was no significant interaction, since most estimates were above unity, and the relative risks were close to unity only for women above age 30 years, smokers, and for those reporting previous abdominal surgery, when no obstetric controls were the comparison group. According to the suggestions by Weiss et al. (1985), the relative risk of ectopic pregnancy for a history of induced abortion considering only married non-contraceptive-using cases and obstetric controls: the estimated relative risks were 2.0 and 4.0 respectively in women reporting one or two or more induced abortions.

DISCUSSION:

The current study results have shown that induced abortions increase the risk of ectopic pregnancy whereas these results increase with the number of previous pregnancies.

A study conducted by Weiss has stated that women who had completed full term pregnancies might lead to an overestimate of the relative risk, since parous women tend to report lower rates of induced abortions.¹⁶ Another study has stated that many parous women were undergone abortions later in their fertile years. Whereas there was no marital difference showed up in the relative risk excluded cases and obstetric controls attempting contraception at the time of conception, and unmarried subjects. Less fertile women are at minimum risk of induced abortion whereas in non-pregnant women the cases may differ in terms of fertility. There are more chances of a woman who is having ectopic pregnancy of getting other risk factors such as pelvic inflammatory disease than women who are having other conditions. Literature has shown association between ectopic pregnancy and induced abortions.

The magnitude of the association, however, was generally weak, and if potential selection biases

tend to overestimate the relative risk the true association may be still lower. A significantly higher relative risk, of about 10, was reported from a study conducted in Greece in the early 1970s, when induced abortions were illegal.²⁴ A more recent study conducted in the same country after legalization of the procedure reported a relative risk of 1.8, an estimate largely consistent with the result of the present study.

In conclusion, this study shows an increased risk of ectopic pregnancy after induced abortion. However, the confidence intervals of relative risk estimates were large, and the lower confidence limit was close to unity, particularly for nonobstetric controls. Thus, in consideration of the potential bias related to selective mechanisms, caution is necessary in the interpretation of the results.

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