

## Epidemiology of Ectopic Pregnancy in Hamadan Province

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Article information	Abstract
<p>Article history: Received: 9 Feb 2011 Accepted: 14 Apr 2011 Available online: 27 July 2011</p> <p>Keywords: Ectopic pregnancy Epidemiology Iran</p> <p>*Corresponding author at: Research Center for Child and Maternity Care, School of Nursing &amp; Midwifery, Hamadan University of Medical Sciences, Hamadan, Iran. E-mail: fshobeiri@yahoo.com</p>	<p><b>Background:</b> The blastocyst implantation in any place other than uterus cavity endometrium is called ectopic pregnancy. The prevalence of ectopic pregnancy is different in various countries. This study has been conducted to investigate the epidemiology of ectopic pregnancy in Hamadan province during 2000-2010.</p> <p><b>Materials and Methods:</b> The present study is a retrospective descriptive study. The data on 872 ectopic pregnancies were extracted by questionnaires from the files in the records department of hospitals and delivery centers in Hamadan province during 2000-2010. Data were analyzed using descriptive statistics and the obtained data were analyzed using SPSS-16 software.</p> <p><b>Results:</b> The frequency of ectopic pregnancy in Hamadan province during 2000-2010 was averagely 2.6 per 1000 pregnancies. Tubal pregnancy with 95.2% is the most prevalent type of ectopic pregnancy most of which had occurred in the right tube (52.4%). Most ectopic pregnancies (52.2%) were in the age group of 25-34.</p> <p><b>Conclusion:</b> The prevalence of ectopic pregnancy in Hamadan province during the mentioned years has been 2.6 in 1000 pregnancies, which is lower compared to many existing data. However, the prevalence of ectopic pregnancy in this province has increased over time, so that it has become 3.3 times as much from 2000-2010.</p> <p>Copyright © 2012 Zahedan University of Medical Sciences. All rights reserved.</p>

### Introduction

The blastocyst implantation in any place other than uterus cavity endometrium is called ectopic pregnancy. In ectopic pregnancies, fetus or embryo is often absent or stops growing [1]. Ectopic pregnancy is a medical emergency that requires immediate treatment [2]. The prevalence of ectopic pregnancy is 2% of total pregnancies and causes 10% of all deaths related to pregnancy [3]. Ectopic pregnancy is a common complication throughout the world the prevalence of which varies in different countries, so that its prevalence in developing countries has reached from 1 in every 44 deliveries to 1 in every 21 deliveries, while in western countries its rate is between 1 in 233 to 1 in 280 deliveries [4].

The studies show that the prevalence of ectopic pregnancy has increased in America, so that it has become 6 times as much over the last 25 years. This evident increase in the ectopic pregnancy can be due to the improvement of early detection and increase of risk factors of this disease [1,5,6]. Ectopic pregnancy has remained a major problem of women in the contemporary women's medical field [7]. The risk of death from ectopic pregnancies is greater than the risk of death from pregnancies that lead to live births or voluntary abortions [1]. If ectopic pregnancy continues and tubal rupture occurs, it causes some complications (such as loss of fertility) and death during the first trimester [5,8,9]. After an ectopic pregnancy, the

risk of recurrence is 7-15% [1]. The probability of the next intrauterine pregnancy is 50-80% and the remaining patients will be infertile [10]. Thus, after an ectopic pregnancy, the possibility of the next successful pregnancy will decrease, which mainly affects young women with low parity who want to become pregnant in the future [1,7]. A maternal death caused by ectopic pregnancy is relatively uncommon in developed countries. Short-term complications are not fully proven, but its long-term psychological consequences can be important [11]. Early diagnosis of ectopic pregnancy, before tubal rupture and excessive bleeding, is important to prevent life-threatening hemorrhagic shock and more damage of tube. In developed countries, the diagnosis of unruptured ectopic pregnancy has risen from 88-100% [4].

Given that 10% of all maternal deaths are attributable to ectopic pregnancy and after an ectopic pregnancy, the likelihood of the next successful pregnancy decreases as well as the negative psychological effects that this has on mothers [1,11], also considering that no study is conducted in this area in Hamadan province, it became necessary to study the frequency of ectopic pregnancy for 11 years in Hamadan as well as its change during this period, so that by better understanding of these factors, the ground would be paved for proper planning to improve the level of more favorable preventive and

medical measures in the future and we would observe further reduction of its associated complications.

## Materials and Methods

This study is a retrospective descriptive study. Among total of 336 438 pregnancies recorded during 2000-2010 in various governmental and private hospitals of Hamadan and all hospitals in the cities of Hamadan, 872 ectopic pregnancies which were hospitalized and treated, were studied. The data on 872 ectopic pregnancies were extracted by questionnaires from the files in the records department of hospitals and delivery centers in Hamadan province.

The data on patients were searched based on the diagnosis type and file numbers in the computer of the filling department of the hospital. Accordingly, first the file numbers of patients with ectopic pregnancy was identified through hospital records department. Then, according to the obtained file numbers, 872 ectopic pregnancies were recorded during this period, based on which the prevalence was calculated. Individual characteristics, history of pregnancy and the factors affecting ectopic pregnancy were recorded in the respective questionnaires from the data in full records (521 cases). It should be noted that the scientific validity of the questionnaires has been discussed by referring to the obstetrics texts and test-retest is used to assess the scientific and practical validity of the questionnaire. To determine the prevalence of ectopic pregnancy, the statistics related to the number of pregnancies during the mentioned 11 years in Hamadan province was obtained from the Health Research Center of Hamadan. Termination of pregnancy includes (live or dead) birth, miscarriage, mole and ectopic pregnancy. Abortion and mole statistics were also obtained through hospital statistics offices. The obtained data were analyzed using SPSS-16 statistical software.

## Results

Among 336,438 pregnancies recorded during April 2000 to March 2010 in Hamadan province, 872 cases of ectopic pregnancy were reported based on which the prevalence of ectopic pregnancy in Hamadan province is estimated 2.6 in every 1000 pregnancies. The prevalence of ectopic pregnancy and pregnancy termination cases in Hamadan province during 2000-2010 has reached from 1.5 in every 1000 pregnancies in 2000 to 4.8 in every 1000 pregnancies in 2010. Consequently, frequency of ectopic pregnancy has become 3.3 times as much from 2000-2010 (Table 1).

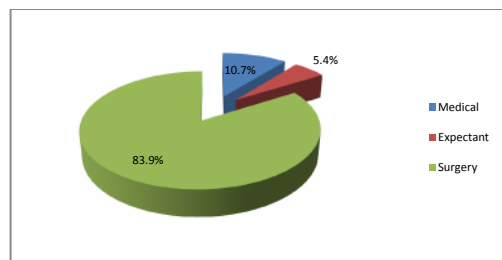
In the present study, 48.2% of patients used contraceptive methods, the most common of which was IUD with 13.4% of frequency and the least common of which was Medroxyprogesterone with 2.5% of frequency.

**Table 1.** Frequency distribution of cases of ectopic pregnancy and pregnancy termination in Hamadan province

Year	No. of EP	No. of determination of pregnancy	Frequency of EP(1000)
2000	43	29452	1.5
2001	39	27809	1.4
2002	39	28724	1.35
2003	49	29273	1.7
2004	56	29779	1.9
2005	60	30061	2.0
2006	78	30344	2.6
2007	84	31499	2.7
2008	117	32355	3.6
2009	144	33298	4.3
2010	163	33844	4.8

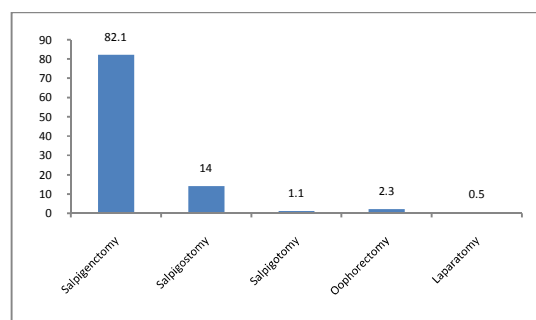
The results indicated that surgery (83.9%) is the most common treatment for ectopic pregnancy and the amount of medical and expectant treatments was respectively 10.7 and 5.4 (Fig. 1).

**Figure 1.** Relative frequency of treatment type of individuals suffering from ectopic pregnancy



From the various types of ectopic pregnancy in this study, tubal pregnancy with a frequency of 95.2% is the most prevalent type of ectopic pregnancy which mostly occurred in the right tube (52.4%) and in the age group of 25-34. Two heterotopic pregnancies (simultaneous occurrence of intrauterine and ectopic pregnancy) have been reported in subjects and the most common type of surgery was laparotomy (82.1%), (Fig. 2).

**Figure 2.** Relative frequency distribution of type of surgery in patients with ectopic pregnancy in Hamadan province (2000-2010)



## Discussion

The results of the 11 years of study on the frequency of ectopic pregnancy and its changes during this period as well as its treatment types in Hamadan province demonstrated that the prevalence of ectopic pregnancy and pregnancy termination in Hamadan province during 2000-2010 has reached 1.5 in every 1000 pregnancies in 2000 to 4.8 in every 1000 pregnancies in 2010. As a result, the prevalence of ectopic pregnancy has become 3.3 times as much during 2000 to 2010. The results show that the frequency of ectopic pregnancy in Hamadan province during 2000-2010 has been 2.6 in every 1000 pregnancies and 2.9 in every 1000 deliveries. In fact, the prevalence of ectopic pregnancy in this study is higher than the studies conducted in France (0.9 in every 1000 pregnancies) and Norway (0.9 in every 1000 pregnancies) and is lower than Nigeria (17.4 in every 1000 deliveries), India (6 per 1000 deliveries), Ghana (32.9 per 1000 deliveries), England (16.2 in every 1000 pregnancies) and America (20 per 1000 pregnancies) [4,7,10-16].

Also according to domestic studies, the rate of ectopic pregnancy in Hamadan is lower than all hospitals in Yazd (5 in every 1000 pregnancies) and Dr. Shariati Hospital of Tehran (12 per 1000 pregnancies) [17,18]. Low rates of ectopic pregnancy in Hamadan province compared to many countries is perhaps due to the lower rate of some factors affecting the incidence of ectopic pregnancy such as lower rates of pelvic infections in Iran than in Western countries or less smoking in Iranian women than the women in other countries. The results explain that the frequency of ectopic pregnancy in Hamadan province has been increasing from 2000-2010, so that it has reached 1.5 in every 1000 pregnancies in 2000 to 4.8 in every 1000 pregnancies in 2010. Increase in ectopic pregnancy in Hamadan province is consistent with reports of Williams et al in America [1], while other studies show that the frequency of ectopic pregnancy in France, Norway and England has been declining over time [12,15,16].

According to available statistics, although the frequency of ectopic pregnancy in Hamadan province is significantly less than many countries, its rate is increasing over time and the reasons for this increase can be the increase of some risk factors affecting ectopic pregnancy, advancement of diagnostic methods of ectopic pregnancy, increase of capacity and awareness of people regarding quick referral and following up their conditions. The results show that most women were nulliparous and then primiparous. Berek and Novak claim that the incidence of ectopic pregnancy increases with increase of deliveries [10]. Consequently, the results of our study are quite inconsistent with this statement. However, it is consistent with the studies conducted by Dr. Aflatonian et al and Musa in Nigeria [7,17]. The results of this study show that the more the number of deliveries increases, the

less the risk of ectopic pregnancy will be. The prevalence of ectopic pregnancy is more in nulliparous or primiparous women and this can affect fertility strength of these women, who intend to have next pregnancies in future. The results showed that the most common treatment of ectopic pregnancy has been surgery, medical and expectant treatment. In the studies conducted by Aflatonian in Yazd and also in India and Norway, surgery is reported as the most common treatment. The rate of use of surgery in India (97%) and Yazd (98.6%) has been more than Hamadan, while medical and expectant treatment in Hamadan has been more than Yazd and India.

This subject will be associated with better prognosis regarding the preservation of future fertility of patients with ectopic pregnancy who are being treated [13,15-20]. The result showed that the most common type of surgery is laparotomy; which has been consistent with the results of other studies conducted in Yazd, Nigeria and India. Prevalence of this surgery in Hamadan is more than Yazd (65.2%) and Nigeria (66.1%) and is almost equal to India (81.9%), in other cases of which, the affected fallopian tube is maintained and this rate has a significant difference with the results of this study [7,13,19,20]. Given that the most common treatment in Hamadan has been surgery and 82.1% of patients who have undergone surgery, have lost one of their tubes, this shows that the fertility of these patients can be affected in future. Especially since most patients in this study were nulliparous or primiparous, the importance of preserving fertility in this population has become doubled. Therefore, it is recommended that using laparotomy surgery should be reduced as much as possible.

The results showed that the most prevalent type of ectopic pregnancy (95.2%) has been occurred in fallopian tube, and after that ovarian pregnancy and abdominal pregnancy. The most common affected tube is right tube (52.4%), which is consistent with the results of studies conducted in Yazd, Nigeria, India and France [7,13,17,21]. The frequency of ectopic pregnancy in Hamadan province during 2000-2010 has been 2.6 in every 1000 pregnancies, which is lower than many existing statistics. However, prevalence of ectopic pregnancy in this province has been increasing over time, so that it has become 3.3 times as much from 2000-2010; whereas, in other countries the frequency of ectopic pregnancy has been declining over time. The increases of ectopic pregnancy over time which is due to improvement of diagnostic methods could be a warning for further follow-ups in order to reduce the rate of ectopic pregnancy in Hamadan in the next years.

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