Factors Associated with Severe Complications in Unsafe Abortion

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Objective: *To assess factors associated with severe complications in unsafe abortion and to compare the complications in unsafe abortions with spontaneous or therapeutic induced abortion at Khon Kaen Hospital.*

Material and Method: *Four hundred sixty two medical records with the diagnosis of abortion at Khon Kaen Hospital between January and December 2008 were reviewed. Patient characteristics, complications and treatment outcomes were collected. The complications from abortion were classified into mild and severe group. Qualitative data were presented as frequencies and percentage. Comparison data was analyzed by using Pearson Chi-square test.*

Results: *Out of 462 cases of abortion observed over the study period, 170 (36.8%) women had undergone an unsafe abortion. Twenty-seven (16%) women had severe complications and included 18 cases with hemorrhage requiring blood transfusions (66.6%), 17 cases with shock (63%), six cases with acute renal failure (22.2%), two cases with sepsis with DIC (7.4%) and two death cases. Ninety-five women (56%) in the unsafe abortion did not use any contraception. When compared between the mild and severe complication in the unsafe abortion group, there were statistical differences in the marital status, level of education and the method used ($p = 0.003$, $p = 0.019$, $p < 0.001$, respectively). Severe complications from unsafe abortion more frequently occurred in married, low educated women where intrauterine chemical injection was the most often used.*

Conclusion: *The unsafe abortion had more severe complications than the spontaneous or therapeutic abortion, which had affected the women's health. Level of education, marital status, and method used were factors associated with severe complications in unsafe abortion.*

Keywords: *Unsafe abortion, Complication, Factor*

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Maternal death and illness resulting from unsafe abortions represent an important public health issue. At Khon Kaen Hospital, between January 2003 and December 2008, the number of unsafe abortions remains at the same level. One hundred fifty to 200 unsafe abortions are performed every year and they are an important cause of maternal death each year. The lack of data on incidence of unsafe abortion and the magnitude of the public health burden of treating post-abortion complications make it difficult to describe the problem and to design a preventive program including post-abortion services.

WHO defines an unsafe abortion as a procedure for terminating an unwanted pregnancy either by persons lacking the necessary skills or in an environment lacking the minimal medical standards, or both[1,2]. In Thailand, there are varying reasons for resorting to an abortion. Women may resort to an abortion when they have an unintended pregnancy. Some women's health are at risk if they continue with the pregnancy. In addition, sexually active unmarried young women are also at risk of having an abortion if they become pregnant[3,4]. Under Thai law, induced abortion is permitted only to save the life of a pregnant woman or is a result of rape and incest.

In these instances, unsafe abortion is a clandestine event that is poorly documented and difficult to study. Most studies were based on women hospitalized for the treatment of abortion complications and the resulting substantial costs to the hospitals[2-8]. As a result, there is limited public awareness of the issue of unsafe abortion, its consequences for women's health, or its impact on the health care system.

The present article aimed to assess factors associated with severe complications in unsafe abortion and to compare the complications and hospital cost of treatment between unsafe abortion

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and the spontaneous or therapeutic induced abortion at Khon Kaen Hospital.

Material and Method

The data was collected from the medical records of women admitted for treatment of complications from unsafe abortion, spontaneous, or therapeutic abortion between January and December 2008 at the Department of Obstetrics and Gynecology, Khon Kaen Hospital.

Unsafe abortion was defined as an instance when women reported that they attempted to end their pregnancy before coming to the hospital. Any patients with molar or ectopic pregnancy were excluded from the present study.

The complications from unsafe abortion were divided into two groups, mild and severe cases. Severe cases were women with at least one diagnosis of acute renal failure, severe hemorrhage requiring blood transfusion, hypovolemic shock, sepsis with or without shock, disseminated intravascular coagulopathy (DIC), or death. Mild cases were women with complications of retained conceptive product, abdominal pain or pelvic infection.

The patient's information charts were reviewed for characteristics data, contraceptive use, pregnancy history, methods used to induce unsafe abortion, complications associated with the abortion, and hospital cost of treatment.

The cross-tabulations and Chi-square tests were used to identify associations between variables and compare the characteristics data of women who had unsafe abortion with women who had been admitted because of a miscarriage. P-value of less than 0.05 was considered statistically significant. All data was analyzed by using SPSS statistical software version 10.0. The present study had been reviewed and approved by the Ethics Committee, Khon Kaen Hospital.

Results

Four hundred sixty two women of reproductive age received post-abortion care at Khon Kaen Hospital. The women were classified into three groups, group of women who had attempted an unsafe abortion (36.8%), group of women who obtained a therapeutic abortion (23.8%), and group of women who had spontaneous abortion (39.4%).

In Table 1, most of women lived in Khon Kaen province. Unsafe abortion occurred more commonly in teenage-single women and had more vocational education than in spontaneous or therapeutic abortion. Nearly 70% of the unsafe abortion was attempted in the first trimester of pregnancy. In addition, 56% of women who had unsafe abortion were not using any contraceptive method (data not shown).

Marital status, level of education and method used were statistically significant by different between severe and mild cases in unsafe abortion. Married status and low education women were more common in the severe cases (51.9% vs. 18.3% and 69.2% vs. 36.9%). Fourteen of 27 patients (51.9%) with severe complications used chemical injection through the vagina in which all cases of acute renal failure after septic unsafe abortion used these procedures. Gestational age was not statistically significant between mild and severe groups but in women who had serious complications were more commonly attempted abortion in the second trimester. Vaginal misoprostol suppository was the most common method used in the unsafe abortion (86 in 170 cases, 50.5%) and it more frequently induced mild complications than serious complications. By contrast, surgical procedure for attempted unsafe abortion more frequency induced severe complications. The chemical injection through the vagina and uterine evacuation method were the most common method used to induce severe complications (14 in 20 cases, 41% and 2 in 6 cases, 33%, respectively) (Table 2).

Bleeding (48.7%) and pain (36.9%) were the common symptoms in all methods reported by women who had an unsafe abortion. However, the majority of women who had fevers used the intrauterine chemical injection (Table 3). The substances used in intrauterine injection method might be soap or antiseptic solutions.

All complications more commonly occurred in unsafe abortion than in spontaneous or therapeutic abortion (Table 4). Retained conceptive product was the most common complication in women with unsafe abortions (74.7%), 68 cases had pelvic infection, 18 cases received blood transfusions, six cases had acute renal failure, 10 cases had hypovolemic shock, seven cases had septic shock, and two cases had sepsis with DIC. Two patients died from severe complications of unsafe abortion. The first case was a 38 years old married woman whom had attempted unsafe abortion three days before admission and was referred from the community hospital with respiratory failure, sepsis shock, acute renal failure, and DIC. She was admitted at the intensive care unit where broad spectrum antibiotics and tetanus toxoid with antitoxin were given. Additionally, corrections of vital organ problems were

Table 1. Comparison of characteristics data between unsafe abortion and spontaneous-therapeutic abortion

Characteristic	Unsafe abortion n = 170 (%)	Spontaneous abortion n = 182 (%)	Therapeutic abortion n = 110 (%)
Age (years)			
13-19	43.3	21.3	13.6
20-34	52.6	60.7	60.9
≥ 35	4.1	18.0	25.5
Mean ± SD	21.9 ± 5.5	26.1 ± 7.2	33.4 ± 6.8
Marital status			
Single	75.0	44.9	30.0
Married	23.3	54.0	70.0
Divorced	0.6	0	0
Widowhood	1.1	1.1	0
Address			
Khon Kaen	74.2	74.8	88.2
Other provinces	25.8	25.2	11.8
Education			
Primary school or lower	22.4	57.9	67.2
High school	33.9	8.9	11.2
Vocational certificate	31.5	17.2	8.4
Bachelor degree	12.1	16.0	13.2
Income (THB)			
< 5,000	22.8	16.4	11.8
5,000-10,000	32.1	41.8	44.4
> 10,000	45.1	41.8	43.8
Gestational age (weeks)			
4-14	67.3	75.9	53.6
15-28	32.7	24.1	46.4

THB = Thai baht

performed. Her clinical course did not respond to treatment and she expired the day after from acute respiratory failure. The second case, a single 21-year-old, was brought to the emergency room with clinical of cardiac arrest after she had induced an unsafe abortion for four hours. Cardiopulmonary resuscitations was done for about one hour but was not successful. Both cases had no autopsy. Their gestational ages and method used of induced unsafe abortion were unknown.

Sixteen women (9.4%) continued their pregnancies. Mean duration of admission in the unsafe abortion was 2.2 days (range 1-19). Eighty-eight unsafe abortion women were admitted in the hospital for one day (51.8%).

Discussion

From the result, the estimated rate of the unsafe abortion was 36.8%, which may represent common unsafe abortion in Khon Kaen province. This estimated rate was higher than the Thai prevalence in 1,999 (28.5%)[3]. The complications more commonly occurred in unsafe abortion than in spontaneous or therapeutic abortion and its complications could be the cause of maternal death.

Marital status, level of education and method used in the unsafe abortion were statistically significant different between mild and severe cases of unsafe abortion. There was a higher rate of serious complications in the low educated, married women and used chemical injection through the vagina method. The complications from unsafe abortion consumed more hospital cost of treatment than spontaneous or therapeutic abortion. This finding was similar to the study of Henshaw SK et al[8]. Fifty-six percent of unsafe abortion women were not using any contraceptives. This may be attributed to the lack of knowledge of birth control methods, sources of service, barriers related to poverty, and access to health services.

Table 2. Comparison of characteristics data between mild and severe complications cases in unsafe abortion

Characteristic	Mild cases n = 143 (%)	Severe cases n = 27 (%)	p-value
Age (years)			0.18
13-19	44.4	29.6	
20-34	52.1	59.3	
≥ 35	3.5	11.1	
Mean ± SD	21.2 ± 5.7	24.4 ± 6.6	
Marital status			0.003
Single	79.6	48.1	
Married	18.3	51.9	
Divorce	1.4	0	
Widowhood	0.7	0	
Address			0.206
Khon Kaen	71.9	63.3	
Other provinces	28.1	36.7	
Education			0.019
Primary school or lower	36.9	69.2	
High school	15.2	11.5	
Vocational certificate	35.1	11.5	
Bachelor degree	12.8	7.8	
Income (THB)			0.271
< 5,000	24.5	23.3	
5,000-10,000	38.5	27.9	
> 10,000	37.0	48.8	
Gestational age (weeks)			0.145
4-14	56.3	40.7	
15-28	43.7	59.3	
Method used			0.01
Vaginal misoprostal	57.4	14.8	
Intrauterine chemical injection	13.9	51.9	
Uterine evacuation	4.2	7.4	
Oral misoprostal	14.7	7.4	
Combined method	9.8	11.1	
Not known	0	7.4	

THB = Thai baht

The present study showed 43.3% of unsafe abortion occurred in adolescents (13-19 years). By contrast, WHO[2] found most common Asian cases were in women aged 30-44 years (42%). The different result may be explained by the time of the study and between hospital-based study and community studies around Asia.

According to the result, several approaches can be taken to reduce unsafe abortion incidence and consequences. First, by sexual education both in school and out of school, disseminating accurate information about contraception, providing and subsidizing a full range of contraceptive services and supplies, offering counseling to aid couples in choosing a method that is appropriate for it, and how to use them correctly and consistently. Second, by post-abortion care package that includes treatment for abortion complications with the contraceptive counseling and services. Action should focus on improving training more health care providers in contraceptive counseling, updating their knowledge of all methods, and increasing their skills. Although these two approaches alone cannot end unsafe abortion problems, their widespread adoption would do a great deal to reduce their incidence and consequences.

The present study has some limitations. First, women who were treated as outpatients were not included. It is nevertheless possible that some

Table 3. Complications according to the methods used to induced unsafe abortion

Method Symptom & complication	Vaginal misoprostol suppository n = 86	Intrauterine chemical injection n = 34	Uterine evacuation n = 8	Oral misoprostol n = 23	Combined method n = 17	Not known n = 2
Symptom						
Bleeding (48.7%)	62	30	6	18	16	1
Pain (36.9%)	36	32	5	14	13	0
Fever (14.4%)	2	29	0	8	0	1
Mild cases (n = 143)						
Retained conceptus	65	25	6	18	12	1
Pelvic infection	20	31	5	4	7	1
Severe cases (n = 27)						
Acute renal failure	0	5	0	0	0	1
Blood transfusion	3	8	1	1	4	1
Hypovolumic shock	1	4	1	1	2	1
Septic shock	0	6	0	0	0	1
Sepsis + DIC	0	1	0	0	0	1
Death	0	0	0	0	0	2

DIC = disseminated intravascular coaglulopathy

Table 4. Comparison of complications between unsafe abortion and spontaneous-therapeutic abortion

Complications	Unsafe abortion n = 170 (%)	Spontaneous abortion n = 182 (%)	Therapeutic abortion n = 110 (%)
Mild cases (n = 143)			
Retained conceptive product	127 (74.7)	152 (83.5)	58 (52.7)
Pelvic infection	68 (40.0)	14 (7.7)	1 (0.9)
Severe cases (n = 27)			
Acute renal failure	6 (3.5)	0	0
Blood transfusion	18 (10.6)	4 (2.2)	11 (1.8)
Hypovolumic Shock	10 (5.8)	6 (3.3)	1 (0.9)
Septic Shock	7 (4.7)	1 (0.5)	0
Sepsis + DIC*	2 (1.1)	1 (0.5)	0
Death	2 (1.1)	0	0

DIC = disseminated intravascular coaglulopathy

spontaneous abortions could have been misclassified, given that some women may have been reluctant to report an attempted abortion and symptom may not have clearly indicated that an attempt to terminate the pregnancy had been made. Second, the cost of treatment was only hospital cost because the present study had no information on the cost of unsafe abortion attempted before going to the hospital. Prospective study with depth interview should be used to collect the total cost of treatment and others important information in the further study. In addition to the immediate complication, some women will suffer from long-term consequences, such as infertility, so that quality post abortion services to follow-up these women should be conducted.

In conclusion, complications occurred more often in unsafe abortion than in spontaneous or the therapeutic induced abortion. Low education, married women and the vaginal chemical injection used were more common in women with severe complications from unsafe abortion. These complications consumed more cost and affected women's health.

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Potential conflicts of interest

None.

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ปัจจัยที่มีความสัมพันธ์กับการเกิดภาวะแทรกซ้อนรุนแรงจากการทำแท้งที่ไม่ปลอดภัย

สุกัญญา ศรีนิล

***วัตถุประสงค์**: เพื่อศึกษาปัจจัยที่มีความสัมพันธ์กับการเกิดภาวะแทรกซ้อนรุนแรง จากการทำแท้งที่ไม่ปลอดภัยและศึกษาภาวะแทรกซ้อนที่เกิดจากการทำแท้งที่ไม่ปลอดภัยเปรียบเทียบกับการแท้งบุตรเองหรือการทำแท้งที่มีข้อบ่งชี้ทางการแพทย์ที่โรงพยาบาลศูนย์ขอนแก่น*

***รูปแบบการวิจัย**: การศึกษาเชิงพรรณนาแบบย้อนหลัง*

***วัสดุและวิธีการ**: เก็บข้อมูลจากแฟ้มประวัติผู้ป่วยใน ที่ได้รับการดูแลรักษาภาวะแทรกซ้อนจากการทำแท้งที่ไม่ปลอดภัย หรือ จากการแท้งบุตรเองและจากการทำแท้งที่มีข้อบ่งชี้ทางการแพทย์ ที่โรงพยาบาลศูนย์ขอนแก่น ตั้งแต่เดือนมกราคม ถึงเดือนธันวาคม พ.ศ. 2551*

***ผลการศึกษา**: มีผู้ป่วยจำนวน 462 ราย ที่ได้เข้ารับการรักษาในช่วงเวลาดังกล่าวจากภาวะแทรกซ้อนของการทำแท้งทั้งจากการทำแท้งที่ไม่ปลอดภัย แท้งบุตรเองหรือการทำแท้งที่มีข้อบ่งชี้ทางการแพทย์ พบการทำแท้งที่ไม่ปลอดภัย 170 ราย คิดเป็นร้อยละ 36.8 ของผู้ป่วยทั้งหมด โดยพบภาวะแทรกซ้อนที่รุนแรง 27 ราย (ร้อยละ 16) ได้แก่ เสียเลือดมากจนต้องได้รับเลือด 18 ราย ภาวะช็อก 17 ราย ภาวะไตวายเฉียบพลัน 6 ราย ติดเชื้อในกระแสเลือดจนเกิดความผิดปกติในกระบวนการแข็งตัวของเลือด 2 ราย และเสียชีวิต 2 ราย ผู้ป่วย 95 ราย (ร้อยละ 56) ไม่ใช้หรือไม่เคยได้รับการคุมกำเนิดปัจจัยที่มีความสัมพันธ์กับการเกิดภาวะแทรกซ้อนรุนแรงอย่างมีนัยสำคัญทางสถิติ คือ ระดับการศึกษา สถานภาพสมรส และวิธีการทำแท้งส่วนมากของสตรีที่มีภาวะแทรกซ้อนรุนแรงจากการทำแท้งที่ไม่ปลอดภัย แต่งงานแล้วมีระดับการศึกษาชั้นประถมหรือต่ำกว่า และทำแท้งโดยวิธีการฉีดสารเคมีเข้าช่องคลอด*

***สรุป**: การทำแท้งที่ไม่ปลอดภัยทำให้เกิดภาวะแทรกซ้อนที่รุนแรงมากกว่าการแท้งเองหรือการทำแท้งที่มีข้อบ่งชี้ทางการแพทย์ ปัจจัยที่มีความสัมพันธ์กับการเกิดภาวะแทรกซ้อนรุนแรงจากการทำแท้งที่ไม่ปลอดภัยคือ ระดับการศึกษา สถานภาพสมรส และวิธีที่ใช้ในการทำแท้ง*