

A study to assess the knowledge and awareness among young doctors about emergency contraception

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ABSTRACT

Background: Emergency contraception (EC) is the contraception on demand which can prevent millions of unintended pregnancies. The knowledge and awareness of young doctors towards EC who may be the first contact physician of the society has not been well studied. This study aims to assess the knowledge and awareness of young doctors in a teaching institute in northeast India. **Methodology:** This study was carried out among 200 young doctors and included 100 interns and 100 postgraduate trainees (PGT) and senior resident doctors (SRD) from January 2020 to March 2020 to compare their knowledge and awareness about EC. A pre-designed self-administered 22 items questionnaire was used to collect data. **Observation:** In our study, majority of the doctors in both groups were aware of levonorgestrel 1.5 mg tablet as EC (93% and 95%) and more interns than PG SRD were aware of its easy availability (86%, 35%, P value < 0.0001), government supply (77%, 30%, P value < 0.0001), and that copper intrauterine contraceptive device (IUCD) can be used as EC up to 120 h (89%, 60%, P value < 0.0001). Most doctors were unaware of ulipristal acetate. Most PGT SRDs believe that EC promotes irresponsible behavior, sexually transmitted diseases, and promiscuity but most intern did not agree to it (P value < 0.0001 for each). More than 65% doctors in both groups were aware of the mechanism of action of EC. PGT SRD were more aware of the effectiveness of EC (62%, 80%, P value 0.0078). More interns were aware that EC affects the next period (53%, 25%, P value < 0.0001). **Conclusion:** Interns were more aware about contraception than PGT and SRD, especially about government supply of EC, about IUCD, and behavioral aspect like promoting irresponsible behavior, sexually transmitted disease, and promiscuity.

Keywords: Awareness, combined oral contraceptives, copper IUCD, emergency contraception, knowledge, levonorgestrel, ulipristal acetate, young doctors

Introduction

Emergency contraception (EC) refers to contraceptive methods for prevention of pregnancy following unprotected sexual intercourse. They are highly effective and can prevent up to 95% of unwanted pregnancies if used within 5 days of intercourse. They are very safe too without any absolute medical contraindication or age restriction to their use.^[1] Various indication for the use of emergency contraceptive includes non-use of any other methods of contraception, concern about

failure of the method they are using either because of condom breakage or slippage, missed oral contraceptive pills, or delay in administration of injectables or other forms of contraceptive and also in cases of sexual assault where the women is not protected by any other contraceptive. The sooner emergency contraceptives are used after intercourse the more effective they are. Thus, an advanced provision of emergency contraceptive to women at risk may ensure its earliest intake following exposure.

Various emergency contraceptive options include levonorgestrel (LNG) pills, ulipristal acetate, combined oral contraceptive pills (OCP), and copper containing intrauterine contraceptive device (IUCD).^[1,2] Emergency contraceptive pills (ECPs) prevent pregnancy by delaying or inhibiting

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ovulation, whereas copper IUCD acts by causing chemical changes in the sperm and ovum, thereby preventing fertilization and also affecting the endometrium. They neither interrupt nor are harmful to an established pregnancy.

Emergency contraceptive should be easily accessible to all in need and it should be included in all family planning programmes. They are especially important for adolescent girls because of the negative impact that unwanted pregnancy can have on them as compared to adults. So, many experts advocate ECPs to be easily accessible to young girls along with prior proper information regarding its use. Several researches revealed that users of emergency contraceptives are mainly adolescent girls and young women where the main reason for requesting emergency contraceptive was condom accident with a small percentage of women stating the reason as non-use of other forms of contraception.^[3,4] In spite of frequent use, however, adolescents have poor knowledge about EC.^[5]

In India, 78% of all pregnancies are unintentional of which approximately 25% are unwanted. Approximately 11 million abortions occur each year, 6.7 million being induced and 4 million spontaneous. And against each legal abortion, approximately 10–11 illegal abortions are taking place. Annually, near about 20,000 women are losing their lives because of complications related to abortion, majority of them being preventable.^[6] Thus, prevention of unwanted pregnancy may be a vital step in improving reproductive health of women. An increase in high risk sexual behavior has been observed in adolescents in many developed countries and they have also been reported to have very high levels of awareness about emergency contraceptives ranging from 61 to 93% in various studies.^[7-9] In developing countries too, this increasing trend of early sexual activity has been noted but they lag behind the ones in the developed countries in their knowledge about emergency contraceptives putting them at risk of unwanted pregnancies. 40–80% of the females are reported to be sexually active by the age of 18 years.^[10]

This study was conducted in our institute over 3 months to assess the knowledge and attitude of young doctors about emergency contraceptive and included interns who had completed MBBS, postgraduate trainee (PGT), and senior resident doctors (SRDs) who are the future generation doctors to serve the society and spread health awareness among them.

Methodology

This was a cross-sectional study conducted in a teaching hospital in northeast India from December 2019 to February 2020. The study included 100 interns and 100 PG and SRD. PG and SRD of the department of Obstetrics and Gynecology were excluded from the study. Data was collected using predesigned, self-administered questionnaire in English. Demographic details of the respondents like age, gender, parental education, and type of family—nuclear or joint—were also recorded. A 22-item questionnaire was constructed to assess their knowledge about emergency

contraceptive, based on review of literature. Answers to each question had multiple options, some correct and some wrong. The option of no knowledge was also provided. Some items had only three options: yes or no or no knowledge. Confidentiality of the collected information was maintained. Data was entered in MS office Excel 2007 and analyzed using SPSS22 and relevant frequencies, proportions, and percentages were calculated.

Observation

This study was conducted to assess the up-to-date knowledge of young doctors about EC in particular and overall knowledge about contraception in general. The evaluation was based on a leaflet with 22 questionnaires. With regards to demographic variables majority of the respondents were from good family background and belonged to both nuclear and joint families. [Table 1]. Results of the study are tabulated in Tables 2 and 3.

Regarding the availability of emergency contraception, PGT and SRD were more aware than interns (P value < 0.0001). Again, among interns, boys were more aware than girls (P value < 0.006) but among PG and SRD, girls were more aware than boys and 100% of these girls were aware of it. Most of the doctors were not aware of the government supply of LNG 1.5 mg tablet.

Majority of the interns answered correctly that LNG 1.5 mg should be taken within 72 h which was correct but the answer of many PGT and SRD was within 48 h (P value < 0.0001). More boys than girls in PGT SRD group had answered correctly (P value < 0.0001). More interns than PGT and SRD knew that EC can be used up to 120 h (P value < 0.0001). Among interns, again girls had better knowledge than boys (P value < 0.0005). No doctors in either group had knowledge about ulipristal acetate as an emergency contraceptive. Interns had better knowledge than PG SRD about the number of times emergency contraceptives can be taken (P value < 0.0001). In the PG SRD group, girls had better knowledge than boys regarding the same (P value 0.0031). Interns were less aware about the effectiveness of emergency contraceptives (P value 0.0078) and boys among them had better knowledge than girls (P value < 0.0001).

100% interns agreed upon the statement that emergency contraceptives promote high-risk behavior in youth but only

Table 1: Participant's demographic variables

	Interns n (%)	PGT SRD n (%)
Gender		
Boys	50 (50%)	50 (50%)
Girls	50 (50%)	50 (50%)
Type of family		
Joint family	36 (36%)	40 (40%)
Nuclear family	64 (64%)	60 (60%)
Parental educational level		
Secondary	12 (12%)	10 (10%)
Graduation	60 (60%)	69 (69%)
Post graduation	28 (28%)	21 (21%)

Table 2: Gender distribution for correct response in intern and PGT -SRD group

Item question	Boys Intern n (%)	Girls Intern n (%)	P	Boys PGTSRD n (%)	Girls PGTSRD n (%)	P
Emergency contraception is available	33 (66%)	15 (30%)	<0.006	30 (60%)	50 (100%)	<0.0001
(a) with prescription						
(b) without prescription						
(c) government supply only						
(d) can be obtained from medicine store						
(e) no knowledge						
Emergency contraceptives are	48 (96%)	45 (90%)	0.715	45 (90%)	50 (100%)	0.2044
(a) normal combined OCP						
(b) LNG 1.5 mg tablet						
(c) Copper IUCD						
(d) Ulipristal acetate						
(e) no knowledge						
Most common form of emergency contraceptive available is	48 (96%)	50 (100%)	0.2424	45 (90%)	45 (90%)	Same response
(a) normal combined OCP						
(b) LNG 1.5 mg tablet						
(c) Copper IUCD						
(d) Ulipristal acetate						
(e) no knowledge						
LNG 1.5 mg can be taken	48 (96%)	50 (100%)	0.2424	45 (90%)	20 (40%)	<0.0001
(a) within 24 hours						
(b) within 48 hours						
(c) within 72 hours						
(d) within 120 hours						
(e) no knowledge						
Emergency contraceptive that can be used upto 120 hours	39 (78%)	50 (100%)	<0.0005	30 (60%)	30 (60%)	Same response
(a) Copper IUCD						
(b) Ulipristal acetate						
(c) no knowledge						
Number of times emergency contraceptive can be used in a year	45 (90%)	45 (90%)	Same response	10 (20%)	25 (50%)	0.0031
(a) once						
(b) twice						
(c) thrice						
(d) unlimited times						
(e) no knowledge						
Emergency contraceptive can be taken by women using regular OCP	38 (76%)	45 (90%)	0.1714	35 (70%)	40 (80%)	0.3558
(a) Yes						
(b) No						
(c) No knowledge						
Emergency contraceptive can prevent STD	48 (96%)	50 (100%)	0.494	50 (100%)	50 (100%)	Same response
(a) Yes						
(b) No						
(c) No knowledge						
Emergency contraceptive can terminate pregnancy	49 (98%)	39 (78%)	1.00	40 (80%)	45 (90%)	0.2623
(a) Yes						
(b) No						
(c) No knowledge						
Effectiveness of emergency contraceptive	42 (84%)	20 (40%)	<0.0001	40 (80%)	40 (80%)	Same response
(a) 95%						
(b) 75%						
(c) 60%						
(d) 50%						
(e) no knowledge						

Contd...

Table 2: Contd...

Item question	Boys Intern n (%)	Girls Intern n (%)	P	Boys PGTSRD n (%)	Girls PGTSRD n (%)	P
Emergency contraceptive will promote irresponsible behaviour in youth (a) Yes (b) No (c) No knowledge	50 (100%)	50 (100%)	Same response	25 (50%)	15 (30%)	0.0656
Emergency contraceptive will increase incidence of STD due to non-use of condom (a) Yes (b) No (c) No knowledge	48 (96%)	5 (10%)	<0.001	10 (20%)	5 (10%)	0.2623
Emergency contraceptive will promote promiscuity (a) Yes (b) No (c) No knowledge	50 (100%)	50 (100%)	Same response	15 (30%)	20 (40%)	0.4019
LNG 1.5 is easily available (a) Yes (b) No (c) No knowledge	36 (72%)	50 (100%)	<0.004	20 (40%)	15 (30%)	0.4019
Emergency contraceptive is applicable for (a) after rape (b) irregular sexual activity (c) sexual activity by chance (d) OCP on demand (e) No knowledge	24 (48%)	45 (90%)	<0.001	20 (40%)	35 (70%)	0.0048
Effectiveness of emergency contraceptive decreases with time (a) Yes (b) No (c) No knowledge	14 (28%)	30 (60%)	<0.023	30 (60%)	45 (90%)	0.4836
Emergency contraceptive acts by preventing (a) ovulation (b) fertilisation (c) implantation (d) no knowledge	35 (70%)	35 (70%)	Same response	30 (60%)	35 (70%)	0.4019
Emergency contraceptives affect next period (a) Yes (b) No (c) No knowledge	18 (36%)	35 (70%)	0.012	10 (20%)	15 (30%)	0.3558
Paramedical staff provide LNG (a) Yes (b) No (c) No knowledge	42 (84%)	35 (70%)	0.1531	10 (20%)	20 (40%)	0.769
Emergency contraceptive has other benefits like oral contraceptives (a) Yes (b) No (c) No knowledge	42 (84%)	15 (30%)	<0.0001	35 (70%)	15 (30%)	<0.0001
Pregnancy test is mandatory before emergency contraceptive use (a) Yes (b) No (c) No knowledge	45 (45%)	42 (42%)	0.5536	42 (42%)	40 (40%)	0.7953
IUCD can be used after fertilisation (a) Yes (b) No (c) No knowledge	32 (32%)	30 (30%)	0.8369	34 (34%)	28 (28%)	0.3030

40% of PG and SRD agreed to the same (P value < 0.0001). Most of the interns did not agree that emergency contraceptives promote STD, however, majority in the other group opined that

emergency contraceptives do promote STD (P value < 0.0001). Majority in the PG SRD group were of the opinion that emergency contraceptives promote promiscuity but interns did not agree to

Table 3: Comparison of positive response between interns and PGT-SRD

Item question	Interns n (%)	PGTSRD n (%)	P
Emergency contraception is available	48 (48%)	80 (80%)	<0.0001
(a) with prescription			
(b) without prescription			
(c) government supply only			
(d) can be obtained from medicine store			
(e) no knowledge			
Emergency contraceptives are	93 (93%)	95 (95%)	0.7673
(a) normal combined OCP			
(b) LNG 1.5 mg tablet			
(c) Copper IUCD			
(d) Ulipristal acetate			
(e) no knowledge			
Most common form of emergency contraceptive available is	98 (98%)	90 (90%)	0.330
(a) normal combined OCP			
(b) LNG 1.5 mg tablet			
(c) Copper IUCD			
(d) Ulipristal acetate			
(e) no knowledge			
LNG 1.5 mg can be taken	98 (98%)	65 (65%)	<0.0001
(a) within 24 hours			
(b) within 48 hours			
(c) within 72 hours			
(d) within 120 hours			
(e) no knowledge			
Emergency contraceptive that can be used upto 120 hours	89 (89%)	60 (60%)	<0.0001
(a) Copper IUCD			
(b) Ulipristal acetate			
(c) no knowledge			
Number of times emergency contraceptive can be used in a year	90 (90%)	35 (35%)	<0.0001
(a) once			
(b) twice			
(c) thrice			
(d) unlimited times			
(e) no knowledge			
Emergency contraceptive can be taken by women using regular OCP	83 (%)	75 (75%)	0.2240
(a) Yes			
(b) No			
(c) No knowledge			
Emergency contraceptive can prevent STD	98 (98%)	100 (100%)	1.000
(a) Yes			
(b) No			
(c) No knowledge			
Emergency contraceptive can terminate pregnancy	88 (88%)	85 (85%)	0.6796
(a) Yes			
(b) No			
(c) No knowledge			
Effectiveness of emergency contraceptive	62 (62%)	80 (80%)	0.0078
(a) 95%			
(b) 75%			
(c) 60%			
(d) 50%			
(e) no knowledge			
Emergency contraceptive will promote irresponsible behaviour in youth	100 (100%)	40 (40%)	<0.0001
(a) Yes			
(b) No			
(c) No knowledge			
Emergency contraceptive will increase incidence of STD due to non-use of condom	53 (53%)	15 (15%)	<0.0001
(a) Yes			
(b) No			
(c) No knowledge			

Contd...

Table 3: Contd...

Item question	Interns n (%)	PGTSRD n (%)	P
Emergency contraceptive will promote promiscuity	100 (100%)	35 (35%)	<0.0001
(a) Yes			
(b) No			
(c) No knowledge			
LNG 1.5 is easily available	86 (86%)	35 (35%)	<0.0001
(a) Yes			
(b) No			
(c) No knowledge			
Emergency contraceptive is applicable for	69 (69%)	55 (55%)	0.06
(a) after rape			
(b) irregular sexual activity			
(c) sexual activity by chance			
(d) OCP on demand			
(e) No knowledge			
Effectiveness of emergency contraceptive decreases with time	44 (44%)	75 (75%)	<0.0001
(a) Yes			
(b) No			
(c) No knowledge			
Emergency contraceptive acts by preventing	70 (70%)	65 (65%)	0.5461
(a) ovulation			
(b) fertilisation			
(c) implantation			
(d) no knowledge			
Emergency contraceptives affect next period	53 (53%)	25 (25%)	<0.0001
(a) Yes			
(b) No			
(c) No knowledge			
Paramedical staff provide LNG	77 (77%)	30 (30%)	<0.0001
(a) Yes			
(b) No			
(c) No knowledge			
Emergency contraceptive has other benefits like oral contraceptives	57 (57%)	50 (50%)	0.3950
(a) Yes			
(b) No			
(c) No knowledge			
Pregnancy test is mandatory before emergency contraceptive use	87 (87%)	82 (82%)	0.4359
(a) Yes			
(b) No			
(c) No knowledge			
IUCD can be used after fertilisation	62 (62%)	62 (62%)	Same response
(a) Yes			
(b) No			
(c) No knowledge			

it (P value < 0.0001). Interns were more aware than PG and SRD regarding the easy availability of LNG (P value < 0.0001). More PG and SRD than interns were aware that effectiveness of emergency contraceptive decreases with time (P value < 0.0001). Doctors in the PG SRD group were less aware than interns about the availability of tablet LNG 1.5 mg with the paramedics (P value < 0.0001). Most of the PG and SRD were also less aware that EC can make the periods irregular (P value < 0.0001). Interns gave more than 60% correct response in 17 items but in the PG SRD group in only 13 items there was more than 60% correct response.

Discussion

Family planning service is a basic human right and not a privilege. No one in need should be deprived of it. EC plays a vital role in

promoting women's reproductive health by preventing millions of unintended pregnancies. In India, emergency contraceptive pills were introduced by Ministry of Health and Family Welfare (MoHFW) in 2002^[11] and made an over-the-counter drug in 2005.^[12,13] It is included in the Essential Drug list in India and has been incorporated in ANM and ASHA worker's kit.^[14]

In a study in India, less than one-third women are reported to be aware about ECP and fewer than 1% had ever used it.^[15] A systematic review by Mehta *et al.* found that only 6% of women ever used the ECPs.^[16] In their study, the reported proportion of ECP use in community and facility-based settings was 5% and 7%, respectively, and the proportion of repeat use varied from 12% to 69%. A study from north east India reported that only 20% of women seeking abortion had knowledge about

emergency contraceptives.^[17] According to two more recently published studies from India, the use of emergency contraceptive methods was reported in 18.57% of women in one study and only 2.3% of women in the other study had used ECPs.^[18,19]

Thus, in spite of being safe, effective, and easily available, emergency contraceptives remains an underutilized method of contraception. Deficiency in knowledge about emergency contraceptive in primary care physicians who are the first contact physicians of the society may be a contributing factor, and such deficiencies have been reported in some studies. A study in Iraq reported clear deficiency of knowledge about EC among primary healthcare physicians which led to its insufficient use.^[20] In another study by Abedi O Harrison, only 45% of the doctors could correctly define EC and only 1.2% doctors were aware of all the four EC methods.^[21] A multi-country study conducted in India, Nigeria, and Senegal reported existence of gap in providers technical knowledge regarding use of ECPs.^[22]

Thus, mere making provisions for government supply of emergency contraceptives and its easy availability as over-the-counter drug would not increase its utilization. The knowledge and awareness of the physician plays a vital role in the increased uptake of this method of contraception. It has been reported that women who were counselled about emergency contraception by their physician were 11 times more likely to use it in the next 12 months.^[23]

Our study was therefore conducted to assess the awareness and attitude of young doctors about EC, the interns, PGT and SRD who are the next-generation doctors to serve the community. We found that only 48% interns and 80% PGT SRD were aware of the availability of emergency contraceptive and most were unaware of its government supply. Among the various forms of emergency contraception, they were only aware of LNG 1.5 mg (95% PG SRD and 93% interns). Although ulipristal acetate can be obtained with prescription from medical stores, it is not DCGI approved as EC and this may be the reason why they lack awareness about it. In a study by Pelin Batur *et al.*, 52% of reproductive health specialists had heard of ulipristal acetate and only 14% provide it in their practice.^[24] They also reported that only 14% of emergency providers and 18% of internists had heard of ulipristal acetate and only 4% provide it. 32% of pediatricians and 22% of emergency providers were not aware of copper IUCD as emergency contraceptive.

In a study by Raine *et al.*, women who were provided with advance provision of emergency contraceptive were neither indulged in more frequent sex in comparison to other women nor did they have multiple sexual partners or other high risk sexual behavior that increases the chance of sexually transmitted infections, rather majority of them had single partner irrespective of advanced provision of emergency contraceptive.^[25] The incidence of promiscuity, high risk sexual behavior or sexually transmitted diseases (STD) is not increased with the use of emergency contraceptive. Most of the interns in our study agreed to the

statement, however PG SRD did not have the same opinion (P value < 0.0001).

Despite government of India provisions to make LNG 1.5 mg readily available at door step and at medicine store couples do not reach there to get it. In our study, PGT SRD were more aware about the availability of emergency contraceptive than interns (P value < 0.0001). An advanced supply of emergency contraceptive not only increases the utilization^[26-28] but also ensures its timely intake immediately following unprotected sex when the effectiveness is maximum.^[29,30]

In the study by Abedi O Harrison, 75.1% of the participant doctors considered emergency contraceptive to be effective but only 53.4% considered it to be safe.^[21] However, the multi-country study by Brady M *et al.* reported that majority (86-94%) of the providers considered ECP to be safe and majority (60-82%) considered it very effective too. 82% of the Indian providers believed ECP to be very effective and 86% considered it safe.^[22] In our study 62% of the interns and 80% of PG SRD were aware of the effectiveness of emergency contraceptives (P value 0.0078).

The study conducted by Khan ME *et al.* reported that 96% of doctors were unaware of the mechanism of action of ECP.^[31] According to latest literature, ECP neither prevents implantation nor causes harm to fertilized egg. In our study, however, 70% interns and 65% PGT and SRD had knowledge about the mechanism of action of ECP. In the same study by Khan ME *et al.*, two-third of the doctors believed that there was no barrier in using or accessing ECP and 78% of the doctors believed that EC should be used not more than once in one menstrual cycle as it is not considered a regular method of contraception. In our study, 90% of the interns but only 35% of the PG SRD (P value < 0.0001) were aware that ECP can be used repeatedly and 69% interns and 55% PG SRD were aware of the proper candidate for using ECP.

The only contraindication to the use of emergency contraceptive is pregnancy as it does not work but it is neither teratogenic nor harmful to the developing fetus.^[32] Testing for pregnancy is not required prior to the use of emergency contraceptive and most of the doctors (87% of interns and 82% of PG SRD) in our study were aware of this. 62% of both interns and PG SRD had knowledge that emergency contraceptives lack the other non-contraceptive benefits. Erin Gainer E *et al.* in their study found that LNG as emergency contraceptive can produce transient changes in the menstrual cycle which subsides in next cycle about which the provider as well as the women should be counselled.^[33] In our study, 53% of the interns and 25% of PG SRD (P value < 0.0001) were aware of this fact.

In the study by Noman ul Haq *et al.*, positive correlation between knowledge–attitude, knowledge–practice, and attitude–practice reaffirmed that better knowledge leads to positive attitude and ultimately good practice.^[34] In our studies, interns had overall more knowledge about emergency contraception than PGT and SRD.

Thus, bridging the knowledge gap of the young doctors about EC is vital because they would be the primary care physicians who would implement their knowledge into clinical practice, thereby increasing the utilization of emergency contraceptives.

Conclusion

EC, a method of peri-coital contraception, is the contraception of demand. All sexually active males and females should have knowledge about the same. Doctors in our society who have a bigger role in spreading awareness should have adequate knowledge and positive attitude toward the use of emergency contraceptive. So, medical undergraduate education needs to be enriched about family planning methods which is essential not only for economic stability but also for promotion of women's health and women empowerment.

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Conflicts of interest

There are no conflicts of interest.

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