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RESEARCH ARTICLE

KNOWLEDGE AND CURRENT PRACTICES REGARDING INTERACTIONS OF ORAL CONTRACEPTIVES AND CERTAIN OTHER MEDICATION AND ADVICE GIVEN BY EMERGENCY DOCTORS IN TERTIARY CARE HOSPITALS OF KOLKATA

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Abstract

Introduction: Oral contraceptive pills or birth control pills are the medications that are used to avoid pregnancy. The contraceptive pills contain small quantities of synthetically prepared progesterone and estrogen hormones. They impede the functioning of natural hormones and interfere with implantation and fertilization of egg and thus prevent pregnancy. The combined oral contraceptive pill is a popular form of contraception for women of child bearing age worldwide.

Aims and Objectives: The aim of our study was to assess the knowledge of emergency doctors in tertiary care hospitals of Kolkata regarding interactions of oral contraceptives and oral antibiotics.

The objective of our study was to find the awareness among the emergency doctors regarding interactions of oral contraceptives and antibiotics and advice give in emergency department.

Material and Methods: This is a prospectively multi centre, multiple choice questionnaire based study, was conducted at emergency department of various hospitals in Kolkata. The Hospitals are multi-specialty hospital that provides all kind of medical facilities. Focus of the study is to determine the awareness, knowledge & ability of Emergency doctors when they are prescribing broad spectrum antibiotics to the females of child bearing age who are on oral contraceptive pills, which can cause OCP failure.

Questions were put in Survey Monkey and circulated in Emergency Department of different hospitals in Kolkata.

Questionnaire Format

1. For the purpose of this proposal, a closed question format to collect data was used.
2. To determine knowledge level, a multiple choice format was used. Multiple choices offer the participant a list of response, from which they select the most appropriate.
3. The questions look at, what advice was given to women who had been prescribed broad spectrum antibiotics.

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4. The set of questionnaire have been referenced from a previously done similar study, and has then been further refined by our H.O.D.

Sample Size: For the purpose of this proposal, data was collected from all participants fulfilling the inclusive criteria. The expected sample size that was recruited for this study is calculated with the help of "Raosoft" sample size calculator. The following data were entered:

Population size: 100

Confidence level: 98%

Margin of error: 9%

Response of distribution: 50%

The sample size required for this survey was calculated as 100, with the following formula:

Sample size is n and margin of error is E are given by,

$$X = z(c/100)2r(100-r)$$

$$n = Nx / ((N-1)E^2 + x)$$

$$E = \text{Sqrt}[(N-n)X/n(N-1)]$$

Where N is the population size

r is the fraction of responses that you are interested in

z(c/100) is the critical value for the confidence level c.

Results: Our study showed that most of the emergency physicians (medical officers / PGT / MEM-PGT/ Registrars /Residents) do not have the knowledge that oral antibiotics can cause oral contraceptive failure. It was found that consultants have better knowledge and awareness than other emergency physicians.

There was a higher proportion of emergency physicians who were able to take proper oral contraceptive history from the patient of child bearing age on OCP. It was found that higher proportion of emergency physicians do not know what advice should be given while prescribing broad spectrum antibiotics to the patient of child bearing age on OCP.

We also found that Most of the emergency physicians do not have knowledge regarding interaction of Rifampin with oral contraceptives but higher proportion of doctors have the knowledge that Tetracycline can cause oral contraceptive failure. Present study also found that higher proportion of doctors did not have the knowledge that Penicillins and Aampicilin can cause oral contraceptive failure.

Higher percentage of doctors documented the advice given about the additional use of contraception after prescribing oral antibiotics.

Conclusion: There is a knowledge deficit among emergency physicians regarding the interaction between oral antibiotics and other medication with OCP.

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Introduction:-

Oral contraceptive pills (OCP) or birth control pills are the medications that are used to avoid pregnancy. The OCP contain small quantities of synthetically prepared estrogen and progesterone hormones. They impede the functioning of natural hormones and interfere with implantation and fertilization of egg and thus prevent pregnancy. The combined oral contraceptive pill OCP is a popular form of contraception for woman of child bearing age worldwide.

In this increasingly litigious world where doctors may be sued if patients of child bearing age who are on OCP become pregnant shortly after a course of antibiotics¹. This issue is of great importance for doctors working in an accident and emergency department where broad spectrum antibiotics are frequently prescribed. Doctors should be aware that women are susceptible to becoming pregnant if taking both the OCP and antibiotics; doctors should be able to offer appropriate advice to women of child bearing age. Before prescribing antibiotics to women of child

bearing age doctor should take complete contraceptive drug history from patient. Doctors should have knowledge and awareness how to give appropriate advice to use extra contraceptive methods while taking oral antibiotics.

Oral contraceptive pills (OCP) and antibiotics are both among the most frequently prescribed drugs in the United States and Europe, including Austria^{4, 5}. However, current evidence regarding the use of antibiotics and any potential impact on the effectiveness of the OCP is conflicting. While a large epidemiological U.S. study concluded that no association could be found between antibiotic use and the risk of breakthrough pregnancy among OCP users⁶, a case-crossover study from the Netherlands reported that a relationship could be likely⁷. Dickinson et al. reported that individual patients on certain antibiotics did show substantial decreases in the plasma concentrations of ethinyl estradiol, although no systematic interaction could be found between antibiotics and OCPs. As it is difficult to identify these women in advance of complications, the authors have recommended a cautious approach⁸. Until there is clear evidence, this approach seems reasonable and the possible interactions should continue to be included among the package inserts of both antibiotics and OCPs.

A recent health policy publications have recognized a prominent role for “health literacy” as the “people’s knowledge, motivation and competences to access, understand, appraise, and apply health information [...]”⁹. Considering this, citizens should be aware of conflicting fields in order to be able to appraise potential risk for their own situation and to actively participate in decision-making. Particularly, this is of high relevance in the field of family planning because of the psychological and social consequences of unintended pregnancies for the mother, father, and the child¹⁰.

The knowledge about drug interactions has been observed as low among the general population, although, adverse drug events are the most common type of injury occurring in patients and the public has expressed interest in greater awareness of these medications.

Aims & Objectives:-

The aim of our study was to assess the knowledge of emergency doctors in tertiary care hospitals of Kolkata regarding interactions of oral contraceptives and oral antibiotics.

The objective of our study was to find the awareness among the emergency doctors regarding interactions of oral contraceptives and oral antibiotics and advice give in emergency department.

Review Of Literature:-

The combined oral contraceptive pill (Combined OCP), often referred to as the pill or birth control pill, is a type of birth control that is designed to be taken orally by women. When it is taken correctly, it alters the menstrual cycle to eliminate ovulation and prevent pregnancy.

Side Effects:

Generally it is accepted that the health risks of taking oral contraceptive pills are lower than those from pregnancy and birth.¹¹

Common:

Different sources note different incidences of side effects. The most common side effect is breakthrough bleeding.

Heart and blood vessels:

Combined oral contraceptives (combined OCP) increase the risk of venous thromboembolism including deep vein thrombosis (DVT) and pulmonary embolism (PE)).

Cancer:

In 2010 a systematic review was done which did not support an increase in overall cancer risk in users of combined OCP but was found slight increase in Breast cancer.

Depression:

A growing body of research evidence has suggested that hormonal contraception may have an adverse effect on women's psychological health.

Hypertension:

OCP can increase the risk of developing hypertension

Other effects:

Other side effects associated with low-dose Combined OCPs are mastalgia (breast tenderness), leucorrhea (increased vaginal secretions), reduced acne and reductions in menstrual flow.

Drug interactions:

Certain drugs reduce the effect of the pill and thus can cause breakthrough bleeding, or increase in the chance of pregnancy. These include drugs such as phenytoin, barbiturates, rifampicin and carbamazepine. Antibiotics, such as doxycycline and ampicillin can impair the bacterial flora responsible for recycling ethinylestradiol from the large bowel" (BNF 2003).¹⁹

Formulations:

Oral contraceptives come in a variety of formulations. Doses of component hormones vary among products, and some pills are monophasic (delivering the same dose of hormones each day) while others are multiphasic (doses vary each day).

Combined OCPs have been somewhat inconsistently grouped into four "generations" (1st, 2nd, 3rd, 4th generation) based on when they were introduced.

Oral Contraceptive Steroid Pharmacokinetics:

Estrogens commonly found in oral contraceptive preparations are ethinylestradiol and mestranol, a pro-drug which is metabolized to ethinylestradiol. After metabolism via the first pass effect, ethinylestradiol has an oral bioavailability of 40% to 50%²¹. Hydroxylation is the main metabolic pathway for ethinylestradiol, whereas conjugation is considered to be a minor pathway in most women, resulting in sulphation or glucuronidation of the original estrogenic steroid. Glucuronide and sulphate conjugates reach the small intestine by way of the bile duct. The conjugates are broken down by hydrolytic enzymes of intestinal bacteria, resulting in the release of free, active estrogenic hormone. The active hormone is then available for reabsorption and undergoes enterohepatic cycling, which is responsible for plasma estrogen levels necessary for contraception.

Mechanisms Of Interaction:

Antibiotics are suspected to decrease OCP efficacy by two main mechanisms: by induction of the cytochrome P450 group of hepatic microsomal enzymes and interference with enterohepatic cycling of ethinylestradiol. The former mechanism is thought to be most clinically significant and most well studied. Rifampin induces cytochrome P450 enzymes in the liver, which results in increased hepatic hydroxylation of estrogens.

Antibiotics can interrupt the entero-hepatic cycling of estrogens by reducing the bacterial population in small intestine, which is responsible for hydrolysis of the estrogen metabolite found in bile (glucuronide moiety) to free drug.

Consequences And Incidence:

Broad spectrum antibiotics can lead to lower levels of circulating oral contraceptive hormone levels and have, thus, been implicated in causing failures in women taking oral contraceptives. Failure of the Pill can lead to several outcomes, including breakthrough bleeding, pregnancy as amenorrhea and spotting²⁴. Metrorrhagia is often considered a clinical sign of oral contraceptive failure if not been experienced by the patient before with any particular medication²⁴.

Implicated Antibiotics:

Rifampin, was first reported to decrease oral contraceptive efficacy through the induction of hepatic enzymes was. Since then, numerous case reports have been reported implicating rifampin as the cause of oral contraceptive failure resulting in pregnancy, spotting, Metrorrhagia or amenorrhea²⁴. Isoniazid, another anti-tuberculosis agent, has been reported as the cause of 14 pregnancies; however, rifampin was co-administered in all these cases. For other antimicrobial agents, the data are not nearly as convincing. Nevertheless, individual case reports and small, retrospective studies have led to the inclusion of warnings in the Compendium of Pharmaceuticals and Specialties²⁵ and other references about possible interactions between oral contraceptives and other antibiotics. Prospective

studies are lacking or inconclusive for these antibiotics²¹. With a recognized failure rate of 1% or less/year in women taking oral contraceptives as directed and 3%/year in typical populations, thousands of pregnancies occur each year in the millions of women taking oral contraceptives. It is not surprising that many of these women are concomitantly being treated with antibiotics²⁶.

A correlation exists between griseofulvin and OCP failure because four women experienced recurrence of original symptoms (Metrorrhagia, amenorrhea) upon re-exposure to the antifungal agent. It appears that with terbinafine (Lamisil, Novartis Pharmaceuticals Canada Inc, Dorval, Quebec), a newer oral antifungal agent, and the significance of this interaction is lessened.

Numerous antibiotics have been implicated in causing oral contraceptive failure by means of interfering with the enterohepatic recirculation of ethinylestradiol. The two groups of antibiotics most commonly involved in the contraceptive failures are tetracyclines and penicillins, namely ampicillin. Both ampicillin and tetracycline have been shown to affect plasma and urinary concentrations of estrogen in both pregnant and nonpregnant women, while progesterone levels remain constant. Later studies in women did not show this, and serum concentrations of ampicillin in humans have not been shown to change significantly the enterohepatic circulation of estrogen. In a recent study of tetracycline 500 mg every 6 h, in conjunction with ethinylestradiol and norethindrone, the plasma levels of both steroids were not significantly changed within the first 24 h or after five to 10 days²⁷.

It has been reported that cotrimoxazole increases sufficiently great the plasma concentrations of ethinylestradiol²¹. This mechanism would actually decrease the probability that cotrimoxazole may lead to oral contraceptive failure. Based on this information Cotrimoxazole can be the antibiotic of choice in women on oral contraceptives; however, not to forget that it has been implicated in 17 pregnancies. The evidence implicating neomycin and erythromycin is even more scarce²⁸.

Studies performed in humans to demonstrate decreased oral contraceptive efficacy as a result of antibiotics have been unable to show an interaction exists, with the exception of CYP3A4 induction by rifampin

Recommendations:-

Reports of oral contraceptive failure seem to be most numerous in women using preparations containing 30 µg of ethinylestradiol and 150 µg of levonorgestrel²⁹. Oral contraceptive drug interactions are thought by some to be more significant in women taking low dose preparations, although much controversy exists. Because antibiotics are generally prescribed on a short term basis, another approach to deal with this interaction is to discuss the use of alternative methods of contraception with women who are prescribed antibiotics and are concurrently taking oral contraceptives.

A practical approach suggested by Miller et al³⁰ is to divide the antibiotics into three groups.

Rifampin is the only antibiotic to date that has been shown to reduce plasma estrogen levels. OCP should not be counted on for birth control while taking rifampin. A second method of contraception is necessary, and it is crucial to inform the patient of the chance for an interaction.

Antibiotics in category B have infrequently been linked with reduced oral contraceptive effectiveness. Retrospective case studies have contributed a large portion of information regarding these antibiotics, and a definite interaction is, as yet, unproven. The clinician should discuss the available data with the patient and offer a second form of birth control to patients who request it.

The antibiotics in category C have only rarely been associated with reduced oral contraceptive efficacy and are most likely safe to use concomitantly with oral contraceptives.

There is no way to ascertain which women are at risk, and, thus, some believe all women should be counseled regarding this interaction and the precautions they can take to avoid any unwanted pregnancy. The patient should decide of another possible method of birth control because she must be comfortable with the method chosen.

Clearly, this controversial issue affects millions of North American women annually, yet poor data are available with which to base recommendations. We should ensure that all efforts are made to collect reliable information on

failure rates with and without contraceptives antibiotics. Until then, a practical approach to antibiotic treatment in women taking OCP is encouraged.

Mullan MH et al³¹ (1999) found that to determine what advice, if any, would be given by accident and emergency (A&E) doctors to women who were taking the combined oral contraceptive pill (OCP) if they had been issued with broad spectrum antibiotics and (2) after an audit program had been initiated, whether appropriate advice was given to such women. A set of questions was circulated among 12 doctors working in the Exeter A&E department to assess their level of knowledge in advising antibiotics to women taking the OCP. Notes of women aged 15-50 who had been prescribed broad spectrum antibiotics were looked into to see if a contraceptive history had been taken. If the patient was found to be on combined OCP it was noted whether recorded advice had been given about using an additional form of contraception. Six months later after two teaching sessions had been held, prescriptions and notes were examined. A patient education leaflet was made to be given to these women, pointing out what additional precautions should be taken after having been prescribed antibiotics. In the A&E department of a district general hospital women 15-50 of age who had been issued with broad spectrum antibiotics. The degree of knowledge in regard to contraceptive guidance given to women taking the OCP among doctors working in an A&E department was not good. However, after teaching sessions and the production of a patient information leaflet, there was an improvement in women receiving correct advice. The clinical significance of drug interactions between OCP and antibiotics indicates the importance of asking a full birth control drug history of any woman of childbearing age and record this in the notes. Methodical audit of this topic is needed to keep it at the front of doctors' minds.

Hoffmann K et al³² (2015) found that the evidence regarding oral contraceptives and its effectiveness with concomitant ingestion of antibiotics is conflicting. Until evidence becomes clearer, patients should be informed of this possible interaction. The focus of this study was to assess the knowledge and the source of information about this interaction in GP patients in Austria. Within the framework of the APRES study, 20 Austrian GPs were designedly selected from among a GP research network and were asked to recruit 200 patients each. The patient cohort was asked to complete a questionnaire. Succeeding analysis included descriptive statistics, statistical tests and logistic regression models. Overall, 3280 questionnaires could be used for analysis. Of these, 29.7 % (n = 974) of patients admitted an awareness of interaction of antibiotics with OCPs. Women under the age of 46 years admit this interaction in 52.3 % of cases. Positive associations for the confidence in an existing interaction in women were identified with age (OR 2.2) and having read the package inserts (OR 1.6). Further, confidence was recognized in males based on age (OR 2.5) and tertiary education (OR 2.0). The main source of information in regard to antibiotics was the GP (55.9 %). Less than 1/3rd of all partakers and half of the women in the reproductive age admitted an interaction between antibiotics and OCPs. Since the GP is the main source of information, these findings portray a large potential for knowledge transfer within the primary health care setting. A multifaceted plan of action is needed at both the population and the GP level to improve awareness and to address these educational gaps.

Dickinson BD et al³³ (2001) found that to evaluate the evidence on possible drug interactions between antibiotics and oral contraceptives (OCs) that may lead to OC failure. MEDLINE and Lexis/Nexis Medical Library searches for 1966-1999 using the key word "oral contraceptives," cross-indexed with the terms "antibiotics," "pregnancy," and "adverse effects," and MEDLINE search were using the additional MeSH term "drug interactions." No language limitations were used. A total of 167 articles were retrieved for analysis. In addition 32 articles were identified by review of the references mentioned in these publications. Articles were chosen on the basis of their ability to give information on the interaction between OC efficacy and antibiotic therapy in otherwise compliant users (defined as women with unwanted pregnancies who report compliance with their OC regimen). In addition, studies that either directly assesses whether effects of antibiotics on the pharmacokinetics of oral contraceptive components, or that study the effects of antibiotics on measures of ovulation in oral contraceptive users were accepted. At least 30 cases of pregnancy have been reported in women taking OCs and antibiotics, particularly rifampin. Approximately 20% of pregnant women reporting to family planning or abortion clinics reported both OC and antibiotic use at same time. Information from adverse event reporting databases generally mirrors the types of information gleaned from these case reports and clinical surveys and accounts for approximately one-third of reported cases. Retrospective surveys, mainly from dermatology-based practices, also have reported 24 pregnancies in OC users who used antibiotics therapy alongside OCs, most commonly tetracyclines and penicillins. Apparent OC failure rates in clinical surveys were within the usual range expected for patterns of typical use. In collective results obtained from relatively small populations, oral antibiotics, with the exception of rifampin, have not notably affected the pharmacokinetics of ethinyl estradiol, levonorgestrel, and norethindrone or reduced the serum concentrations of gonadotropins. However,

individual patients have been identified who had significant decreases in the plasma concentration of these components of OCs and who appeared to ovulate. Rifampin impairs the effectiveness of OCs. Pharmacokinetic studies of other antibiotics have not shown any systematic interaction between antibiotics and OC steroids. However, individual patients do show large decreases in the plasma concentrations of ethinyl estradiol when they use certain other antibiotics, notably tetracycline and penicillin derivatives. A cautious approach is advised because it is not possible to identify these women in advance.

Summers A et al ³⁴ (2008) found that it is common in emergency departments (EDs) for emergency nurse practitioners (ENPs) or doctors to prescribe antibiotics for and dispense antibiotics to women who are also taking the oral contraceptive pill (OCP) and for more junior staff to hand out the prescriptions. Women who take OCPs are advised to take extra birth control precautions while taking and for seven days after finishing their antibiotics. Those who finish their current packs of OCPs before the end of this seven-day period are advised to start their next packet of OCPs without a break (Gibbons et al 2003). Women are given this advice because of the potential interaction of the two types of drug which can lead to OCP failure and therefore unplanned pregnancy. This article reviews the literature that describes these interactions and examines the basis of this advice.

Zhanel GG et al ³⁵ (1999) found that to assess the clinical significant of antibiotic and oral contraceptive drug interactions. MEDLINE search from 1975 to 1998 (September) inclusive. Search terms 'antibiotic', 'oral contraceptive' and 'pregnancy' were put in. Published papers as well as references from these papers were reviewed. Papers registering mechanistic interactions between antibiotics and oral contraceptives were included. Studies reporting OCP pharmacokinetics, mechanisms, incidence, implicated antibiotics and clinical outcome of antibiotic/OCP drug interactions. Reports of OCP failure seem to be a great many in women using preparations containing 30 µg of ethinylestradiol and 150 µg of levonorgestrel. Rifampin is the only antibiotic that has been reported to decrease plasma estrogen concentrations. When taking rifampin, OCP cannot be relied upon and a second method of contraception is necessary. Amoxicillin, ampicillin, griseofulvin, metronidazole and tetracycline have been linked with contraceptive failure in three or more clinical cases. When these agents are used, the clinician should talk about the accessible data with the patient and suggest a second form of birth control. Other antibiotics are most likely safe to use along concomitantly with OCP.

Taylor J et al ³⁶ (2012) found that the aim of this paper is to highlight a change in guidance relating to possible interactions between antibiotics and oral contraceptives. Until recently, dentists have been advised to warn women taking the combined oral contraceptive pill of the routine need to use additional contraceptive measures while taking courses of broad spectrum antibiotics. Recent guidance relating to this issue has changed and dentists may not be aware of this. This paper reminds dentists of the earlier guidelines and linked evidence, reviews the pharmacokinetics of hormonal birth control and presents them with the latest evidence-based guidance. This should change their clinical practice.

Bauer KL et al ³⁷ (2005) found that Oral contraceptives (OC) are taken by approximately 70 million women worldwide. Studies suggest there is utmost variation in plasma concentrations of active hormone between individuals, even without any notable drug interactions. Current combinations contain lower doses of estrogen; a drug interaction causing reduced efficacy of OCs may be likely. More than 200 occurrences have been reported anecdotally, in adverse-event monitoring systems, and in retrospective surveys of OC failure for women treated with various antibiotics. But no prospective RCTs have been done, and most of the retrospective case series have not used control groups. All the pharmacokinetic and retrospective studies have a small sample size, which may cover up an interaction within the normal OC failure rate. Given this, 4 retrospective surveys on women taking OCs who were treated with antibiotics (erythromycin, tetracycline, minocycline, penicillin, ampicillin, sulfa, cephalosporins) found OC failure rates of 1.2% to 1.6%, within the range for representative populations. These data are subject to recall bias and less reported of poor compliance. A lot of studies have looked at OC serum levels with and without antibiotic treatment. These studies show that the concomitant administration of antibiotics (ampicillin, tetracycline, doxycycline, metronidazole, erythromycin, clarithromycin, temafloxacin, fluconazole, ciprofloxacin, or ofloxacin) did not decrease serum levels of either the estrogen or progestin components of the OCP. Rifampin is a potent inducer of the cytochrome P450 system, capable of decreasing serum estrogen and progestin levels, and a small-scale study has indicated breakthrough ovulation among 2 of 9 women taking OC and rifampin. It is however, possible, that a true interaction between antibiotics and OCs may only exhibit itself in the very small subset of women who have uncommonly low steroid hormone levels. The women most likely to have OC failure are those with low rates of ethinyl estradiol hydroxylation, high rates of hepatic conjugation, low plasma concentrations of

ethinyl estradiol, large scale intestinal hydrolysis of estrogen conjugates, or gut flora especially susceptible to the antibiotic. These women may be identified by symptoms of sudden bleeding, cramping, nausea, vomiting or diarrhea, or by unplanned pregnancy. Regrettably, they cannot be recognized by any routine diagnostic tests. The most traditional approach emphasizes patient education and additional forms of non-hormonal birth control for woman on OCs during any antibiotic therapy and for at least one week after treatment.

Gibson J et al ³⁸ (1994) found that this paper considers the possible interactions between oral contraceptive pills and antibiotics, in the context of modern dental practice. A review of the literature on such interactions leads to the conclusion that current national guidelines on the use of alternative birth control measures during a course of broad spectrum antibiotics in women also using the OCP should be stressed on and encouraged as part of good clinical practice. A patient information leaflet may be regarded as a useful way of presenting such guidance to female patients.

Matos C et al ³⁹ (2015) found that the discussion about the possible interactions between oral antibiotics and oral contraceptives (OCs) is not new. However, it remains a subject that gives rise to controversy among the scientific community. There are several mechanisms proposed that explain these antibiotic related interactions. Although the overall risk of interaction is low, infrequent cases of OC failure during antibiotic therapy continue to be reported. The objective of this study was to determine the effect of the antibiotic therapy in OC's effectiveness and which mechanisms are involved in that process. A total of 52 articles were chosen for analysis and other 21 articles were identified by review of the references cited in these publications. Articles were selected on the basis of information related to antibiotic therapy and OC's efficacy relationship. All different classes of antibiotics were examined, including 40 different antibiotics, which were crossed with 10 OC data, searching for possible interactions between antibiotics and OC's and loss or commitment of efficacy. Most of the analyzed antibiotics reduced the level or effect of OC indirectly by altering intestinal flora, remaining a low risk of birth control failure. However, the main adverse reactions reported with the use of antibiotics include: nausea, vomiting and diarrhea, which could also have interference on the efficacy of OC's. Moreover, some antibiotics can alter the level or effect of OC's by affecting hepatic/ intestinal enzymes metabolism or by P-glycoprotein (MDR1) efflux transporter. Some possible severe interactions were identified and the mechanisms involved were detected. Pharmacy professionals' play an important role regarding the communication of information to women using OC's that will start antibiotic therapy. Patients should be advised to add extra precautions during the therapy and for seven days after finish the antibiotic.

DeRossi SS et al ⁴⁰ (2002) found that with the exception of rifampin-like drugs, there is a lack of scientific evidence supporting the ability of commonly prescribed antibiotics, including all those regularly employed in outpatient dentistry, to either reduce blood levels and/or the effectiveness of OCP. Till date, all clinical trials studying the effects of associated antibiotic therapy (with the exception of rifampin and rifabutin) have failed to show an interaction. Like all drugs, OCP are not 100% effective with the failure rate in the typical United States population reported to be as high as 3%. It is thus possible that the case reports of unwanted pregnancies during antibiotic therapy may simply represent the normal failure rate of these drugs. Considering that both drug classes are prescribed often to women of childbearing potential, one would expect a much higher rate of OCP failure in this group of patients if a true drug : drug interaction existed. Contrarily, if the interaction does exist but is a comparatively rare event, occurring in, say, 1 in 5000 women, clinical studies such as those described in this article would not detect the interaction. The pharmacokinetic studies of simultaneously antibiotic and OCP use, and the retrospective studies of pregnancy rates among OCP users exposed to antibiotics, all suffer from one possible common weakness, i.e., their relatively small sample size. Sample sizes in the pharmacokinetic trials ranged from 7 to 24 participants, whereas the largest retrospective study of pregnancy rates still evaluated less than 800 total contraceptive users. Still, the occurrence of such a rare interaction would not differ from the accepted normal failure rate of OCP therapy. The medico-legal consequence of what looks like relatively a rare interaction remains somewhat "murky." On one hand, they have medico-legal experts advising the profession to exercise caution and warn all OCP users of a potential reduction in effectiveness during antibiotic therapy. These opinions are not evidence-based and rely to a great extent on one or two legal proceedings that cannot even be validated. On the other hand, there is one recently published legal proceeding in which the end result was in favor of the oral surgeon. There is clearly a need for additional scientific research in OCP users that comprise larger sample sizes, different time courses (precautionary use versus standard 7-10 day use versus extended use), and separate delivery systems (systemic administration versus local-controlled delivery) of antibiotic therapy. Though experts on this topic still recommend apprise OCP users of the potential for a rare interaction, and for practitioners to advise them to employ additional barrier techniques of contraception during antibiotic therapy and for at least 1 week beyond the last dose

it is hoped that a set of guidelines regarding this controversy will eventually be published that is evidence-based, and not solely the results of unreliable reports, expert opinions, and legal proceedings.

Bardaweel SK et al ⁴¹ (2015) found that the studies exploring the knowledge, attitude and patterns of OCs use among women in Jordan are lacking. The aim of this study was to determine knowledge, viewpoint, and patterns of oral contraceptives (OCs) use among women in Jordan. A face-to-face questionnaire inquiring demographic information and issues related to knowledge and use of OCs was completed by women (n = 1571), who have had used OCs at least once in their lifetime. A model was created to assess the effects of knowledge, viewpoint and earlier experience on the patterns of OCs utilization. Jordanian women showed positive attitudes towards OCs efficacy and safety. This positive attitude was cordially associated with the patterns of use. However, only half of participating women revealed that they knew how to use OCs. About 60 % of women received advice for OCs use from a physician. Furthermore, women's knowledge about OCs mechanism of action was obtained namely from physician (29.9 %). Side effects were reported in 75.1 % of part taking women. Reported side effects were headache (41.2 %), mood swings (35.5 %), irritability (33.5 %) and weight gain (28.7 %). Interestingly, the occurrence of side effects was the main reason for OCs cessation. The study showed that women who have positive attitude toward OCs tend to use them more appropriately. However, there is still need for educational programs to increase knowledge about OCs utilization in Jordan.

Hall KS et al ⁴²(2014) found that using a multidimensional approach, they assessed young women's knowledge of oral contraceptives (OC) and its effect on OC continuation rates. They used data from 659 women aged 13–25 years participate in a randomized controlled trial of an educational text message OC carry on intervention. Women received 6 months of everyday text messages or routine care. At baseline and 6 months, they used a comprehensive 41-item questionnaire measuring knowledge of OC's mechanism, side effects, potency, use, risks, and benefits. They determine OC continuation status and reasons for stopping at 6 months. They analyzed association between OC knowledge and continuation with multivariate logistic regression. Young women scored, on average, 22.8 out of 41 points on the OC knowledge evaluation at baseline and 24.7 points at 6 months. The 6-month OC continuation rate was 59%. OC continuers had >2-points-higher OC knowledge scores at 6 months than who stopped (p<0.001). Those who reported discontinuing their OCs for side effects and forgetfulness scored >2 points lower than women who discontinued for other reasons (p-values<0.001). In multi-component regression models, each correct response on the baseline and 6-month knowledge evaluation was associated with a 4% and 6% increased odds of OC continuation, respectively. Six-month OC knowledge scores were negatively linked with OC cessation due to side effects (odds ratio [OR] 0.94) and forgetfulness (OR 0.88). OC knowledge, which was low among young women in their study, was associated with OC continuation and common reasons for stopping. Continued efforts to identify relationships between OC knowledge and behavior and to test the effectiveness of different components of interventions aimed at enhancing knowledge, addressing side effects, and enhancing use of OCs are needed.

Hogmark S et al ⁴³ (2013) found that this study aimed to investigate the knowledge, attitudes and perceptions towards contraceptive use and counseling among medical students in Maharashtra, India. Considerable global maternal mortality and morbidity could be avoided through the use of effective birth control method. In India, birth control services are frequently unavailable or there are obstacles to get modern, reversible contraceptives. A cross-sectional descriptive study using a self-administered questionnaire was carried out among 1996 medical students in their fifth year of study at 27 medical colleges in the state of Maharashtra, India. Descriptive and analytical statistics interpreted the survey instrument and notable results were presented with 95% CI. Respondents show a desire to provide birth control services. A few students had skilled training in abortion care. There were misconceptions about modern birth control methods and the impact of sex education. Viewpoint towards sex education were mainly positive, before marriage counseling was supported and the influence of traditional values and negative provider viewpoint on services was recognized. Gender, area of raring and type of medical college did not change the results.

Abdulghani HM et al ⁴⁴ (2009) found that this study was conducted to assess the knowledge of family medicine providers and their attitudes towards emergency contraception in a teaching hospital in Karachi, Pakistan. A 21-item questionnaire containing the demographic profile of participants and questions regarding knowledge of and viewpoint towards emergency birth control was distributed among participants. 45 interviews were conducted, in total, with a response rate of 100%, with faculty physicians (33%), residents (27%), medical officers (40%), 36% male and 64% female physicians; of them, the mostly (64%) were married. Although the large majority (71%) of the respondents showed noteworthy familiarity with emergency contraception, objective assessment revealed shortcomings in their knowledge. About 38% of the partakers incorrectly chose menstrual irregularity as the most

common side-effect of progestin-only emergency contraception pills, and only 33% answered that emergency contraception was not an abortifacient while 42% were unsure. Forty percent of the physicians prescribed emergency birth control in the past. The large majorities (71%) of the physicians were familiar with emergency birth control, yet insufficiencies in knowledge inaccuracies were identified. Barriers to its use were identified as 'it will promote immorality' (31%), teratogenicity (44%), liability (40%), religious/ethical reasons (27%), and inexperience (40%). Overall viewpoint regarding emergency birth control were positive; however, most (82%) physicians were not satisfied with their current knowledge of emergency contraception, and there was a difference between perceptions of physicians and actual knowledge. Interventions providing education to family physicians regarding emergency contraception is strongly suggested.

Chung-Park M et al ⁴⁵ (2008) found that the safety and efficacy of postcoital use of OCP, commonly called "emergency contraception pills" (ECPs), have been well documented; however, this method of preventing pregnancy is less used in the United States. Through the use of surveys, the current study determined providers' knowledge, prescribing practices, attitudes, and barriers regarding ECPs at a military treatment facility in the southwest United States. Results showed a lack of knowledge of ECP provision, with 34% believing treatment had to be started in 48 or fewer hours, and 60% believing two doses must be taken within 24 hours or more of each other. Somewhat more than one-half (54.4%) of the givers reported having prescribed an ECP; those who had prescription had more positive attitudes about ECPs. Recognizable barriers included women not asking for ECPs, worried about safety of ECPs, and issues regarding liability. A difference between providers' perceived and actual knowledge about ECPs shows the need for better education for all providers who care for women.

Ibrahim ZM et al ⁴⁶ (2013) found that to explore the knowledge, attitude and practice of health care providers in Ismailia, Egypt regarding emergency contraception. A structured questionnaire was distributed to a total of 270 health care providers (obstetrics and gynecology specialists and general practitioners or family physicians). The questionnaire contained four main domains: knowledge about EC; demographic characteristics; viewpoint toward EC; and practice of EC. Knowledge of specialists was notably higher than general practitioners/family physicians regarding the three most commonly used methods of EC, viz ; combined OCP (Yuzpe) method, progesterone only pills (plan B) method and IUCD. Only 24.0% of GPs/family physicians and 39.5% of specialists had good knowledge of EC ($p = 0.01$). 42.6% of GPs/family physicians and had favorable attitude toward EC with no significant difference. 26.6% of GPs/family physicians and 39.5% of specialists reported ever prescribing EC. Yuzpe method was the most commonly advised method by specialists (31.5%) and GPs/family physicians (27.0%) with no marked difference. Knowledge and favorable attitude were remarkably associated in both groups. Years of experience and Age remarkably affected the three outcome measures.

Zeteroğlu Ş et al ⁴⁷ (2004) found that Emergency contraception (EC) has a definite place in family planning in most populations but physicians' attitude has been shown to greatly influence the utilization and spread of this method hence this study. Study Objectives: To evaluate the knowledge and attitude of doctors in Delta State towards emergency contraception as an impact factor in the spread of this globally accepted contraceptive method in their environment. A cross-sectional descriptive study using a structured questionnaire randomly administered to doctors while attending continuous medical education (CME) programs in the state. Responses from 249 doctors merited analysis. A total of 192 respondents (77.1%) were males while 57 (22.9%) were females. Only 112 respondents (45%) correctly defined EC. Thirty-five doctors (14.1%) were not able to name any contraceptive methods that are suitable for EC. Ninety-three doctors (37.3%) could identify only one method, 76 doctors (30.5%) knew two, 42 doctors (16.9%) knew three and only 3 doctors (1.2%) knew four methods. A total of 187 respondents (75.1%) said EC is effective but only 133 (53.4%) thought that EC is safe. Only 123 doctors (49.4%) knew that ECs are applicable up to 72 hours after an unprotected sexual intercourse. Eighty doctors (32.1%) felt EC can be dispensed over-the-counter (OTC) without a physician's prescription while 129 (57.8%) would not support such a policy. Despite poor knowledge of the definition, applicable methods and other intricate details about ECs, doctors in the state were favorably disposed to the promotion and controlled use of EC and majority would not support religious bias against their use.

Fok WK et al ⁴⁸ (2016) found that emergency contraception (EC) can prevent unintended pregnancy, but remains underutilized. Reasons for underuse of EC are multifactorial. Poor knowledge of EC may be a major contributor among physicians. The objective of this study was to describe attitude, physician knowledge and counseling practices regarding EC. A web-based survey was sent to family medicine, pediatrics, obstetrics and gynecology, residents, internal medicine and emergency medicine faculty at a large academic center. Questions assessed

indications and duration of use, knowledge of mechanism of action, accessibility, relative effectiveness of various forms of EC as well as experience with prescribing. To describe the sample population descriptive statistics were used. To compare total knowledge scores student's t tests were used. There were 656 surveys sent and only 23% responded. The mean knowledge score was 7.08, out of maximum of 14. Of the respondents mean knowledge score of ob/gyn was greater than emergency medicine (mean 7.5 vs. 6.2, $P=.005$). Ulipristal acetate was not recognized by 86% of EM physicians, 39% of ob/gyns, and 47% of other physicians as a useful method of EC. Respondents who reported appreciable confidence with EC had higher mean knowledge scores ($P=.03$). Only 63% of ob/gyns reported ever having talked about EC with their patients.

Matyanga CM et al ⁴⁹ (2018) found that emergency contraceptives play a major role in preventing unwanted pregnancy. The use of emergency contraceptives is characterized by lack of knowledge and myths by both users and health professionals. To summarize the clinical pharmacology of hormonal methods of emergency contraception is the main objective of this paper. A literature review was done to describe in detail the efficacy, mechanism of action, safety profile, pharmacokinetics, and drug interactions of hormonal EC pills. This information is useful users and to healthcare professionals to fully understand how hormonal emergency birth control methods work.

Arigbede AO et al ⁵⁰ (2008) found that unplanned pregnancies may result if antibiotics are prescribed for women using combined oral contraceptive (COC). The current study is designed to determine: pattern and rate of antibiotic advised during a normal week, the awareness of Nigerian dentists about possible drug interaction between oral contraceptives and antibiotics, and to determine the knowledge of Nigerian dentists about additional preventive measures to be employed by patients on combined oral contraceptive being placed on broad spectrum antibiotics. A cross-sectional study was conducted in 2 secondary and 3 tertiary health institutions in Nigeria using dental House Officers and Residents as subjects. Medical House officers were employed as control. An close and open ended questionnaire that sought for information about types and number of times antibiotics are prescribed per week, influence of some medical conditions and drugs like contraceptive on choice of antibiotics and knowledge of relevant advice to be given to patients on oral contraceptive being given broad spectrum antibiotics was employed. Antibiotics are prescribed 1-3 times per week by most dental graduates during a normal week. The antibiotics frequently prescribed by both the cases and the control include: Amoxicillin and Metronidazole. The dentists' decision to select appropriate antibiotics is influenced by the presence of pregnancy (90.52%) and penicillin allergy (85.34%). Only 59.48% of the dentists admitted being so influenced by current history of contraceptive use. Two respondents knew and gave relevant advice on additional preventive measure to be employed by patients on pills being given antibiotics. This initial report suggests that Nigerian dentists are not well informed about the potential interaction between antibiotics and combined oral contraceptive and the extra precautions to be taken when antibiotics is prescribed for women on COC pills. A cross-section of Nigerian dentists prescribed antibiotics 1-3 times during a normal week.

Material & Methods:-

This is a prospectively multi centre, multiple choice questionnaire based study, was conducted at emergency department of various hospitals in Kolkata. The Hospitals are multi-specialty hospitals that provide all kind of medical facilities. Focus of the study is to determine the awareness, knowledge & ability of Emergency doctors when they are prescribing broad spectrum antibiotics to the females of child bearing age who are on oral contraceptive pills, which can cause OCP failure.

Questions were put in Survey Monkey and circulated in Emergency Department of different hospitals in Kolkata.

Questionnaire Format:

1. For the purpose of this proposal, a closed question format to collect data was used.
2. To determine knowledge level, a multiple choice format was used. Multiple choices offer the participant a list of response, from which they select the most appropriate.
3. The questions look at, what advice was given to women who had been issued with abroad spectrum antibiotics.
4. The set of questions have been referenced from a previously done similar study and has then been further refined by our H.O.D.

Sample Size:

For the purpose of this proposal, data was collected from all participants fulfilling the inclusive criteria. The expected sample size that was recruited for this study is calculated with the help of "Raosoft" sample size calculator. the following data were entered:

Population size: 100

Confidence level: 98%

Margin of error: 9%

Response of distribution: 50%

The sample size required for this survey was calculated as 100, with the following formula:

Sample size is n and margin of error is E are given by,

$$X = z(c/100)2r(100-r)$$

$$n = Nx / ((N-1) E^2 + x)$$

$$E = \text{Sqrt} [(N-n) X/n (N-1)]$$

Where N is the population size

r is the fraction of responses that you are interested in

$z(c/100)$ is the critical value for the confidence level c .

Statistical Analysis:

For statistical analysis data were entered into a Microsoft excel spreadsheet and then analyzed by SPSS (version 25.0; SPSS Inc., Chicago, IL, USA) and GraphPad Prism version 5. Data had been summarized as mean and standard deviation for numerical variables and count and percentages for categorical variables. Two-sample t-tests for a difference in mean involved unpaired samples or independent samples. Paired t-tests were a form of blocking and had greater power than unpaired tests. One-way analysis of variance (one-way ANOVA) was a technique used to compare means of three or more samples for numerical data (using the F distribution). A chi-squared test (χ^2 test) was any statistical hypothesis test wherein the sampling distribution of the test statistic is a chi-squared distribution when the null hypothesis is true. Without other qualification, 'chi-squared test' often is used as short for Pearson's chi-squared test. Unpaired proportions were compared by Fischer's exact test or Chi-square test, as appropriate.

Explicit expressions that can be used to carry out various t-tests are given below. In each case, the formula for a test statistic that either exactly follows or closely approximates a t-distribution under the null hypothesis is given. Also, the appropriate degrees of freedom are given in each case. Each of these statistics can be used to carry out either a one-tailed test or a two-tailed test.

Once a t value is determined, a p-value can be found using a table of values from Student's t-distribution. If the calculated p-value is below the threshold chosen for statistical significance (usually the 0.10, the 0.05, or 0.01 level), then the null hypothesis is rejected in favor of the alternative hypothesis.

p-value ≤ 0.05 was considered for statistically significant.

Result And Analysis:-

Table 1:- Distribution of Age Group.

Age Group	Frequency	Percent
≤ 30	26	26.0%
31-40	32	32.0%
41-50	23	23.0%
51-60	19	19.0%
Total	100	100.0%

26(26.0%) emergency physicians were under ≤ 30 years old, 32(32.0%) emergency physicians were under 31-40 years old, 23(23.0%) emergency physicians were 41-50 years old and 19(19.0%) emergency physicians were 51-60 years old. The value of z is 0.935. The value of p is .35238. The result is not significant at $p < .05$.

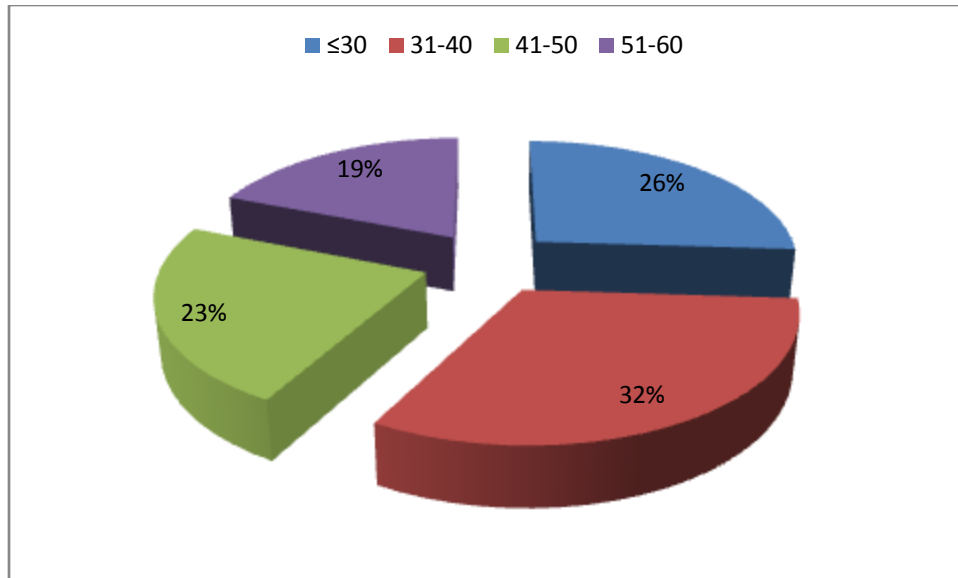


Figure 1:- Distribution of Age Group.

Table 2:- Distribution of SEX.

SEX	Frequency	Percent
Female	33	33.0%
Male	67	67.0%
Total	100	100.0%

33(33.0%) emergency physicians were female and 67(67.0%) emergency physicians were male. The value of z is 4.8083. The value of p is < .00001. The result is significant at p < .05.

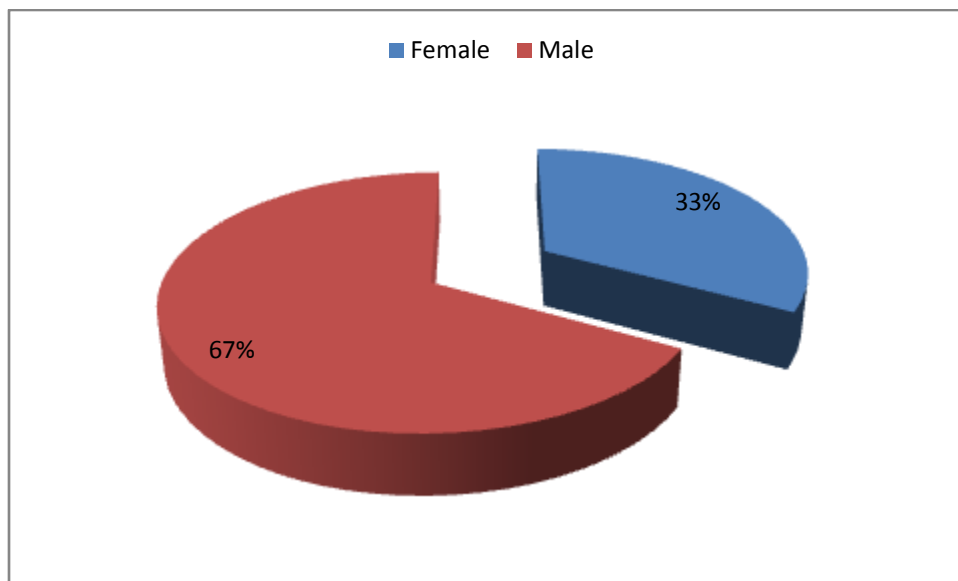


Figure 2:- Distribution of SEX.

Table 3:- Distribution of category.

Category	Frequency	Percent
Consultant	38	38.0%
House Officer	4	4.0%
MO/RMO	6	6.0%

PGT/PDT /MEM-PGT	30	30.0%
Registrar/Resident	22	22.0%
Total	100	100.0%

38(38.0%) emergency physicians were best described by the Consultant, 4(4.0%) emergency physicians were best described by the House Officer, 6(6.0%) emergency physicians were best described by the MO/RMO, 30(30.0%) emergency physicians were best described by the PGT/PDT /MEM-PGT and 22(22.0%) emergency physicians were best described by the Registrar / Resident. The value of z is 1.1942. The value of p is .23404. The result is not significant at $p < .05$.

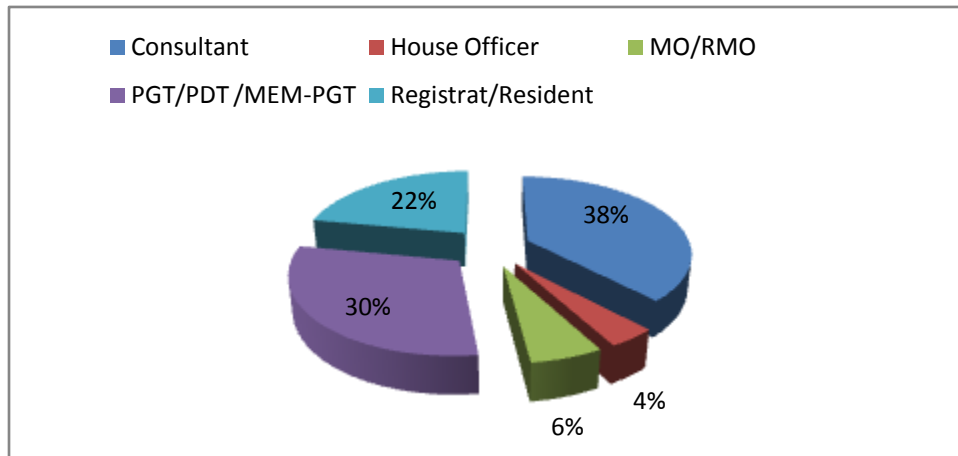


Figure 3:- Distribution of category.

Table 4:- Distribution of years of work experience Group.

years of work experience Group	Frequency	Percent
1 (1-5 years)	28	28.0%
2 (6-10 years)	9	9.0%
3 (12-19 years)	28	28.0%
4 (22-33 years)	35	35.0%
Total	100	100.0%

28(28.0%) emergency physicians had 1-5 years of work experience, 9(9.0%) emergency physicians had 6-10 years of work experience, 28(28.0%) emergency physicians had 12-19 years of work experience and 35(35.0%) emergency physicians had 22-33 years of work experience. The value of z is 1.0656. The value of p is .28462. The result is not significant at $p < .05$.

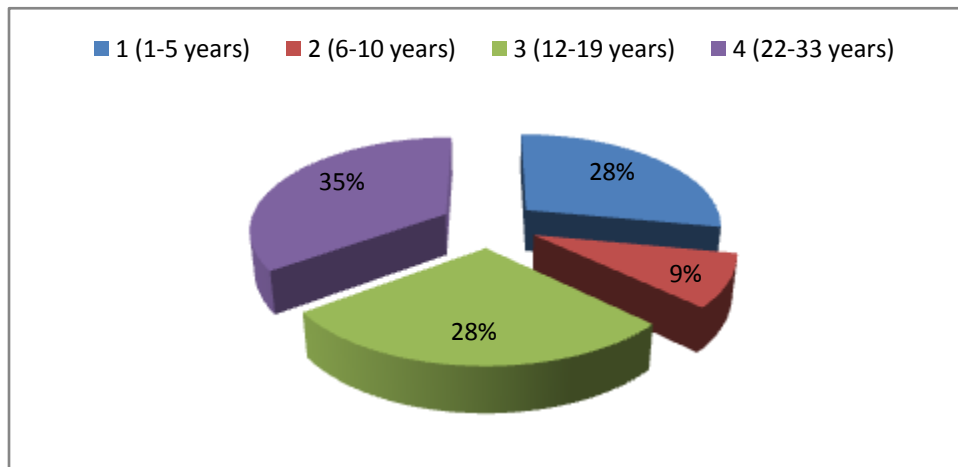


Figure 4:- Distribution of years of work experience Group.

Table 5:- Distribution of Q5. Do you know oral antibiotics can cause oral contraceptive failure?

Q5. Do you know oral antibiotics can cause oral contraceptive failure?	Frequency	Percent
No	72	72.0%
Yes	28	28.0%
Total	100	100.0%

28(28.0%) emergency physicians had knowledge that the oral antibiotics can cause oral contraceptive failure. The value of z is 6.2225. The value of p is < .00001. The result is significant at p < .05.

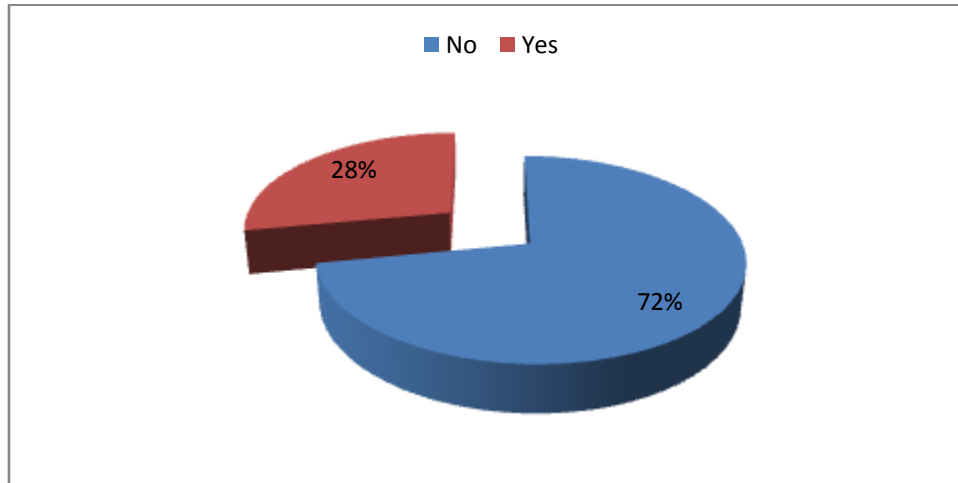


Figure 5:- Distribution of Q5. Do you know oral antibiotics can cause oral contraceptive failure?

Table 6:- Distribution of Q6. Do you take proper oral contraceptive history from the patient of child bearing age?

Q6. Do you take proper oral contraceptive history from the patient of child bearing age?	Frequency	Percent
No	59	59.0%
Yes	41	41.0%
Total	100	100.0%

41(41.0%) emergency physicians were able to take proper oral contraceptive history from the patient of child bearing age. The value of z is 2.5456. The value of p is .01078. The result is significant at p < .05.

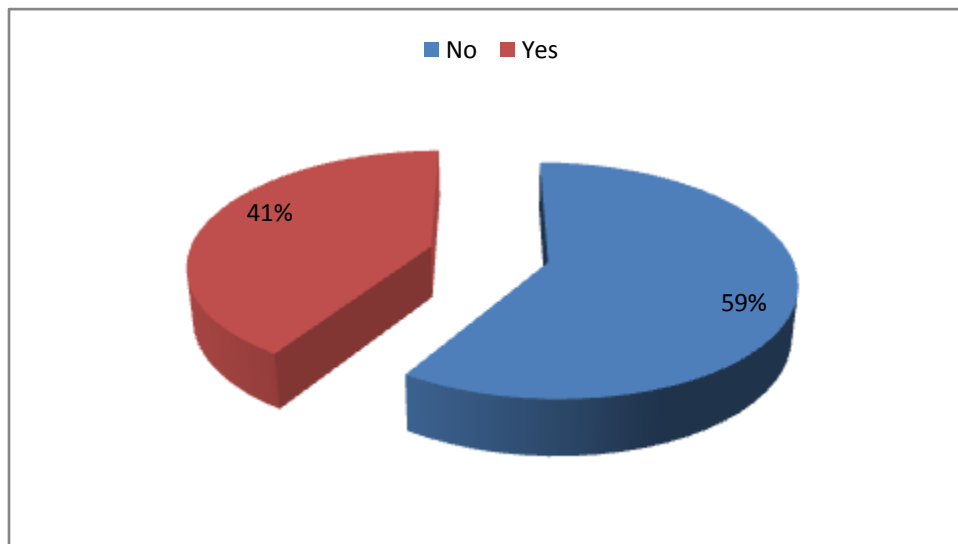


Figure 6:- Distribution of Q6. Do you take proper oral contraceptive history from the patient of child bearing age?

Table 7:- Distribution of Q7.Do you know while prescribing broad spectrum antibiotics to the patient of child bearing age on OCP what advice should be given?

Q7.Do you know while prescribing broad spectrum antibiotics to the patient of child bearing age on OCP what advice should be given?	Frequency	Percent
No	66	66.0%
Yes	34	34.0%
Total	100	100.0%

34(34.0%) emergency physicians had the knowledge about while prescribing broad spectrum antibiotics to the patient of child bearing age on OCP and what advice should be given. The value of z is 4.5255. The value of p is < .00001. The result is significant at $p < .05$.

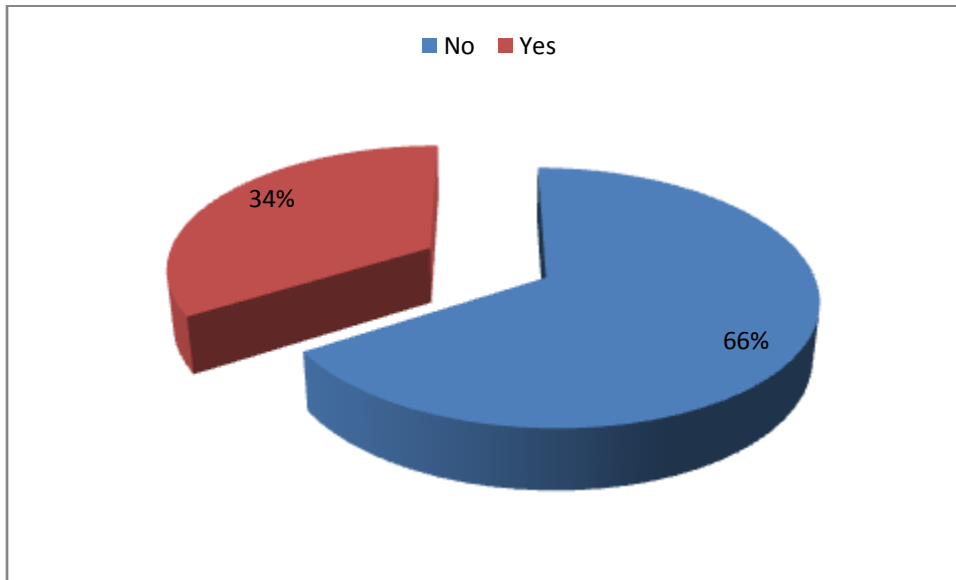


Figure 7:- Distribution of Q7.Do you know while prescribing broad spectrum antibiotics to the patient of child bearing age on OCP what advice should be given?

Table 8:- Distribution of Q8.Do you advice additional contraception while issuing antibiotics to women of child bearing age?

Q8	Frequency	Percent
No	89	89.0%
Yes	11	11.0%
Total	100	100.0%

11(11.0%) emergency physicians had advised additional contraception while issuing antibiotics to women of child bearing age. The value of z is 11.0309. The value of p is < .00001. The result is significant at $p < .05$.

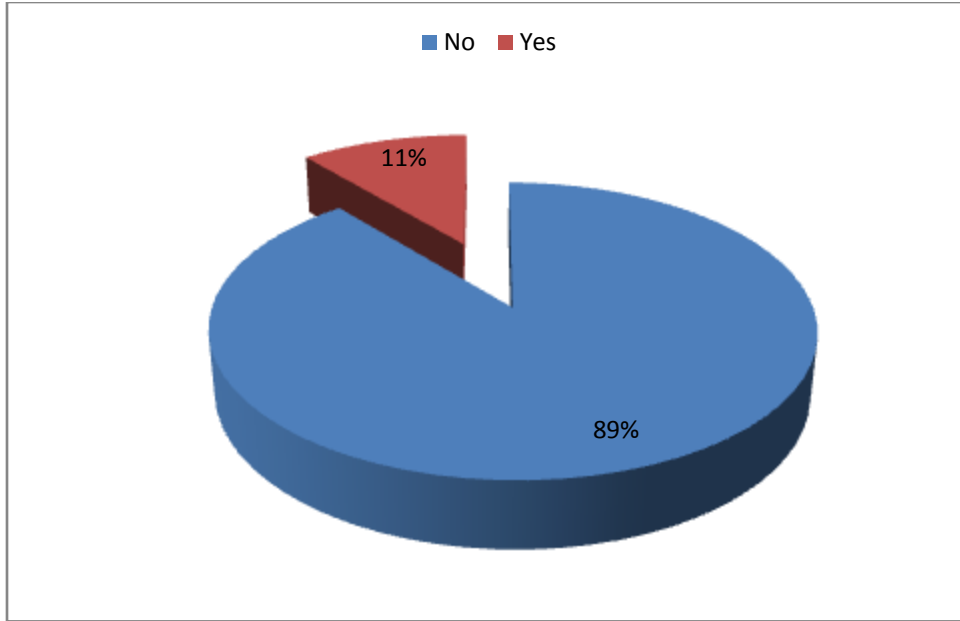


Figure 8:- Distribution of Q8.Do you advice additional contraception while issuing antibiotics to women of child bearing age?

Table 9: Distribution of Q9.DO you have knowledge regarding interaction of Rifampin with oral contraceptives?

Q9. DO you have knowledge regarding interaction of Rifampin with oral contraceptives?	Frequency	Percent
No	69	69.0%
Yes	31	31.0%
Total	100	100.0%

31(31.0%) emergency physicians had knowledge regarding interaction of Rifampin with oral contraceptives. The value of z is 5.374. The value of p is < .00001. The result is significant at p < .05.

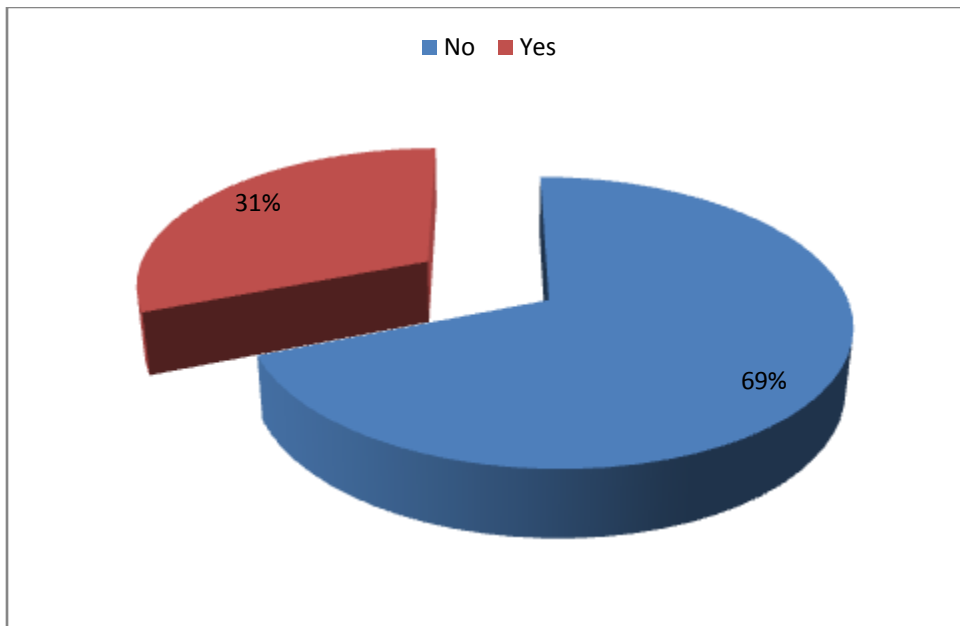


Figure 9:-Distribution of Q9.DO you have knowledge regarding interaction of Rifampin with oral contraceptives?

Table 10:- Distribution of Q10.Do you know 1st sign of oral contraceptive failure after women of child bearing age take oral antibiotics?

Q10. Do you know 1st sign of oral contraceptive failure after women of child bearing age takes oral antibiotics?	Frequency	Percent
No	70	70.0%
Yes	30	30.0%
Total	100	100.0%

30(30.0%) emergency physicians had knowledge about the 1st sign of oral contraceptive failure after women of child bearing age takes oral antibiotics. The value of z is 5.6569. The value of p is < .00001. The result is significant at p < .05.

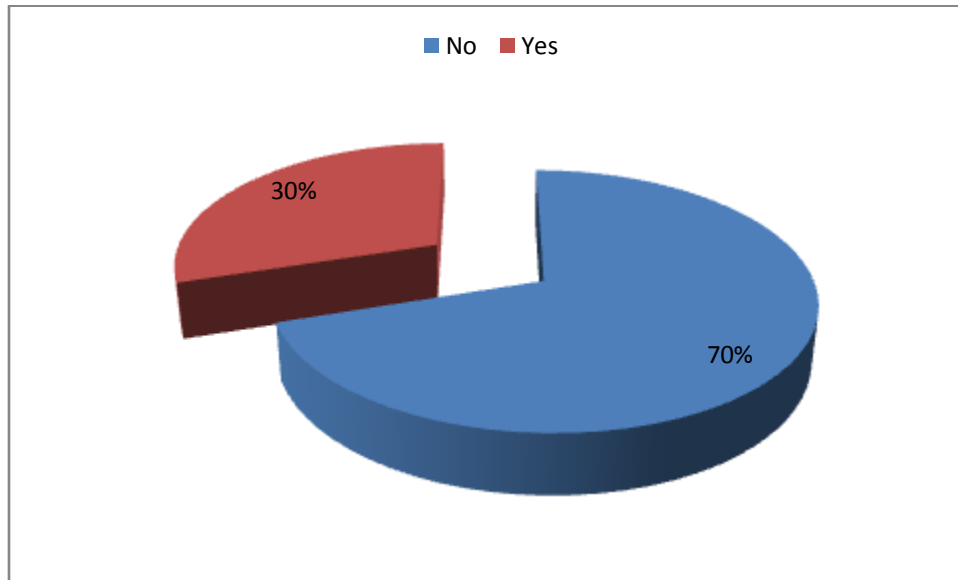


Figure 10:- Distribution of Q10.Do you know 1st sign of oral contraceptive failure after women of child bearing age take oral antibiotics?

Table 11:- Distribution of Q11.If patient is on oral contraceptives whether documented advice is given about the additional use of contraception after prescribing oral antibiotics.

Q11: If patient is on oral contraceptives whether documented advice is given about the additional use of contraception after prescribing oral antibiotics	Frequency	Percent
No	76	76.0%
Yes	24	24.0%
Total	100	100.0%

24(24.0%) emergency physicians had agreed to provide documented advice of additional use of contraception after prescribing oral antibiotics. The value of z is 7.3539. The value of p is < .00001. The result is significant at p < .05.

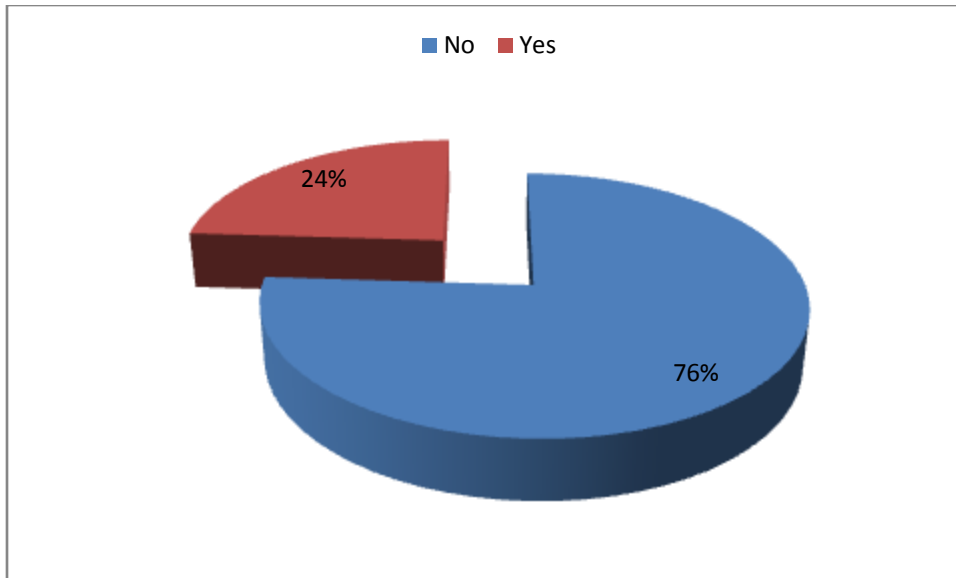


Figure 11:- Distribution of Q11.If patient is on oral contraceptives whether documented advice is given about the additional use of contraception after prescribing oral antibiotics.

Table 12:- Distribution of Q12.Tetracyclin can cause oral contraceptive failure?

Q12. Tetracycline can cause oral contraceptive failure?	Frequency	Percent
No	40	40.0%
Yes	60	60.0%
Total	100	100.0%

60(60.0%) emergency physicians had agreed that Tetracycline can cause oral contraceptive failure. The value of z is 2.8284. The value of p is .00466. The result is significant at $p < .05$.

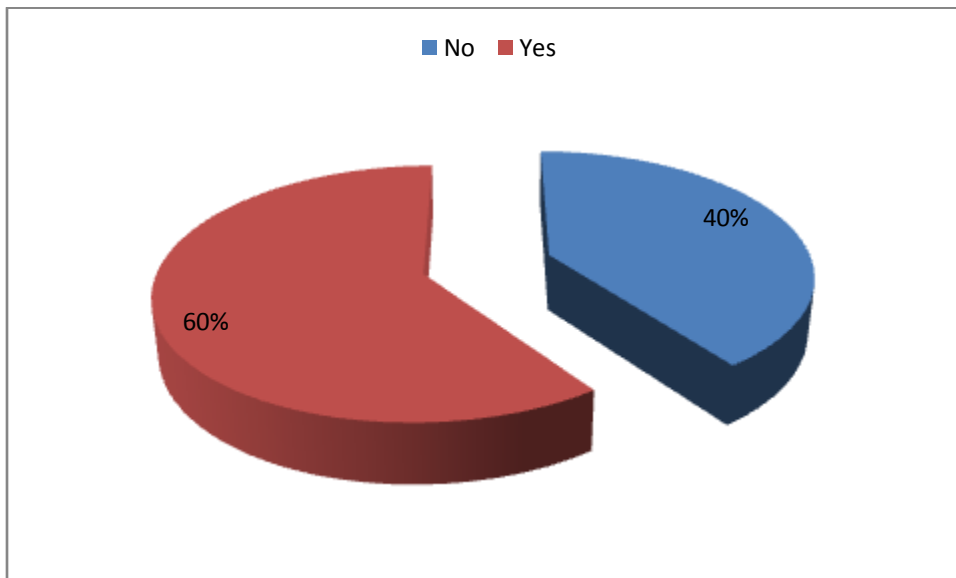


Figure 12:- Distribution of Q12.Tetracyclin can cause oral contraceptive failure?

Table 13: Distribution of Q13.Penicillins can cause oral contraceptive failure?

Q13.Penicillins can cause oral contraceptive failure	Frequency	Percent
No	59	59.0%
Yes	41	41.0%

Total	100	100.0%
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41(41.0%) emergency physicians had agreed that Penicillins can cause oral contraceptive failure. The value of z is 2.5456. The value of p is .01078. The result is significant at $p < .05$.

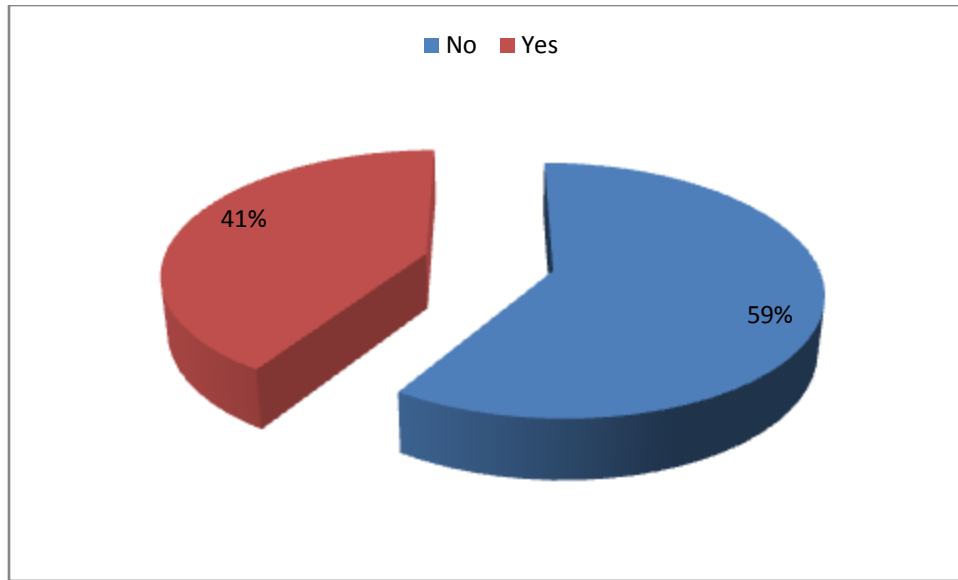


Figure 13:- Distribution of Q13.Penicillins can cause oral contraceptive failure?

Table 14: Distribution of Q14.Ampicilin can cause oral contraceptive failure?

Q14	Frequency	Percent
No	63	63.0%
Yes	37	37.0%
Total	100	100.0%

37(37.0%) emergency physicians had agreed that Ampicilin can cause oral contraceptive failure. The value of z is 3.677. The value of p is .00024. The result is significant at $p < .05$.

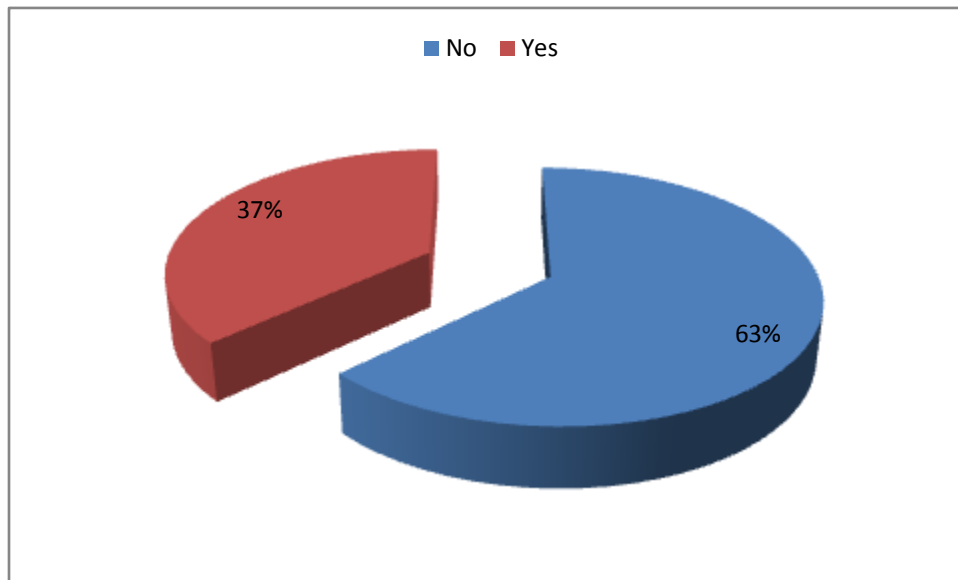


Figure 14:- Distribution of Q14.Ampicilin can cause oral contraceptive failure?

Table 15:- Distribution of Q17.Do you record advice given in the E/D notes?

Q17: Distribution of Q17.Do you record advice given in the E/D notes?	Frequency	Percent
No	60	60.0%
Yes	40	40.0%
Total	100	100.0%

40(40.0%) emergency physicians had recorded the advice given in the E/D notes. The value of z is 2.8284. The value of p is .00466. The result is significant at $p < .05$.

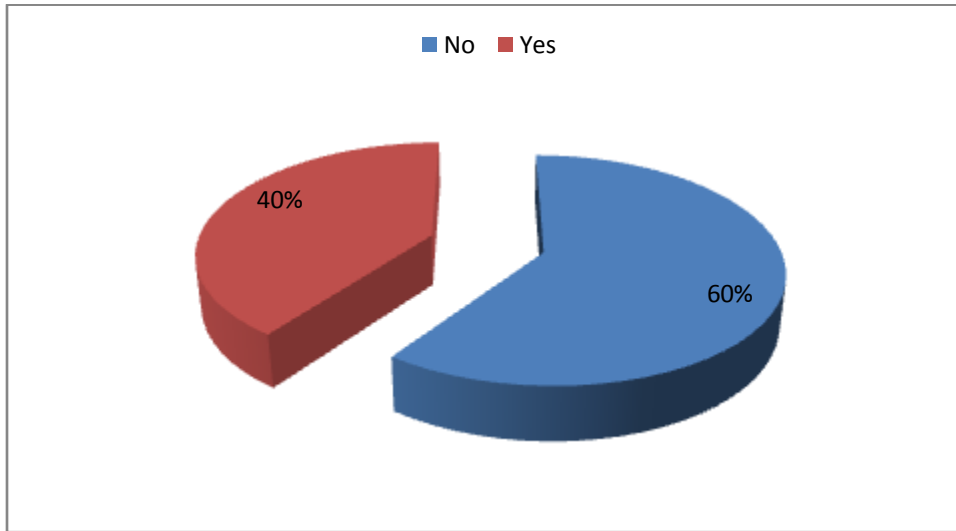


Figure 15:- Distribution of Q17.Do you record advice given in the E/D notes?

Table 16:- Distribution of Q18.Do you feel a patient information leaflet would be a good idea?

Q18. Do you feel a patient information leaflet would be a good idea?	Frequency	Percent
No	7	7.0%
Yes	93	93.0%
Total	100	100.0%

93(93.0%) emergency physicians felt that a patient information leaflet would be a good idea. The value of z is 12.1622. The value of p is $< .00001$. The result is significant at $p < .05$.

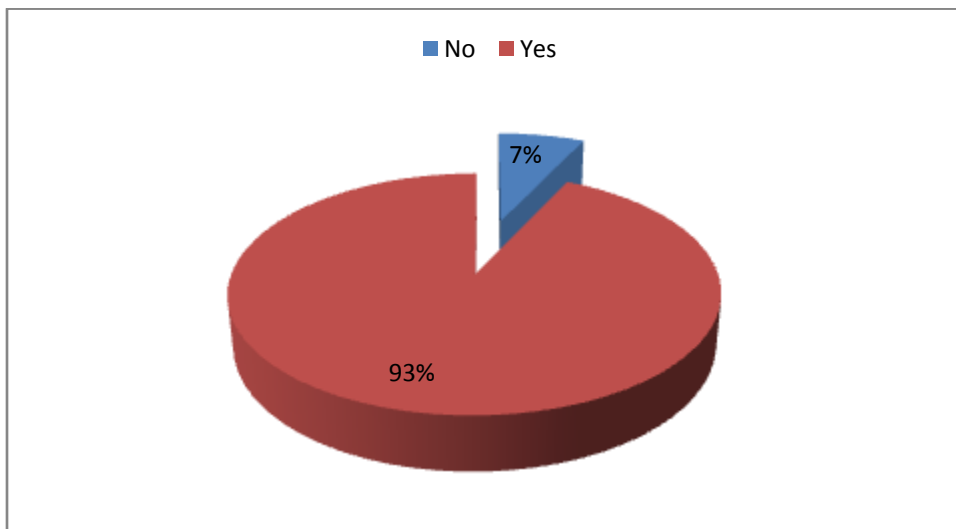


Figure 16:- Distribution of Q18.Do you feel a patient information leaflet would be a good idea?

Table 17:- Distribution of years of work experience .

Work experience (in Years)	Mean	SD	Minimum	Maximum	Median
	2.7000	1.2185	1.0000	4.0000	3.0000

The mean Work experience (mean±s.d.) of emergency physicians was 2.7000 ± 1.2185 years.

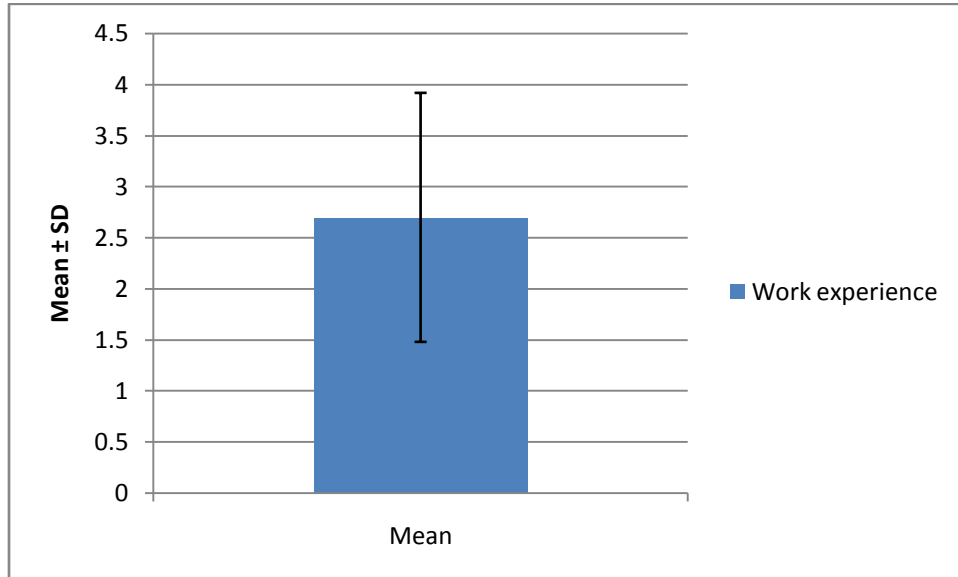


Figure 17:- Distribution of years of work experience Group.

Table 18:- Association between SEX: category.

CATEGORY							
SEX	Consultant	House Officer	MO/RMO	PGT/PDT /MEM-PGT	Registrar/Resident	TOTAL	
Female	15	2	2	9	5	33	
Row %	45.5	6.1	6.1	27.3	15.2	100.0	
Col %	39.5	50.0	33.3	30.0	22.7	33.0	
Male	23	2	4	21	17	67	
Row %	34.3	3.0	6.0	31.3	25.4	100.0	
Col %	60.5	50.0	66.7	70.0	77.3	67.0	
TOTAL	38	4	6	30	22	100	
Row %	38.0	4.0	6.0	30.0	22.0	100.0	
Col %	100.0	100.0	100.0	100.0	100.0	100.0	

Chi-square value: 2.4156; p-value: 0.6598

In Consultant, 15(39.5%) emergency physicians were female, 23 (60.5%) emergency physicians were male. In House Officer, 2(50.0%) emergency physicians were female, 2(50.0%) emergency physicians were male. In MO/RMO, 2(33.3%) emergency physicians were female, 4(66.7%) emergency physicians were male. In PGT/PDT /MEM-PGT, 9(30.0%) emergency physicians were female, 21(70.0%) emergency physicians were male. In Registrar/Resident, 5(22.7%) emergency physicians were female, 17(77.3%) emergency physicians were male. Association of SEX vs. CATEGORY was not statistically significant (p=0.6598).

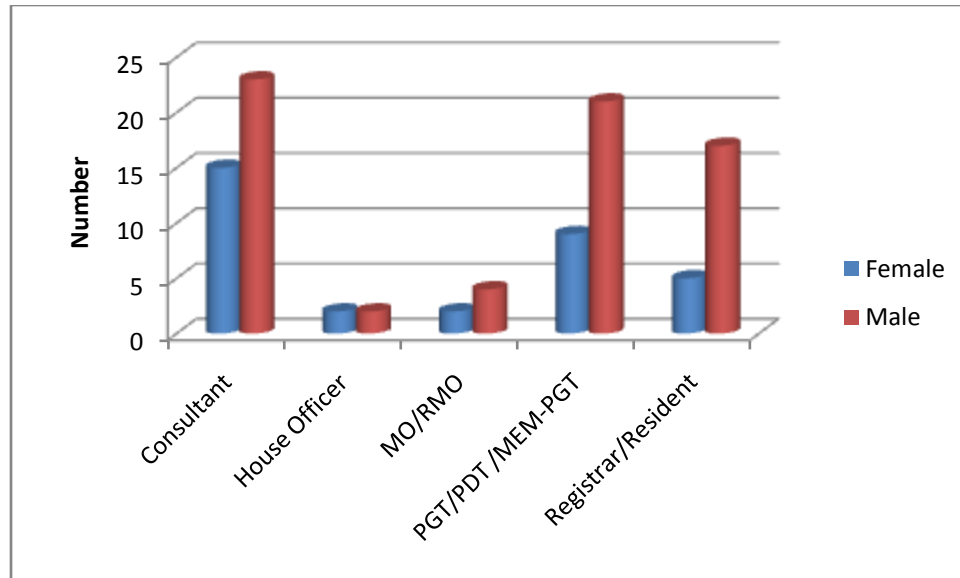


Figure 18:- Association between SEX: category.

Table 19:- Association between Years of work experience Group: category.

CATEGORY							
years of work experience Group	Consultant	House Officer	MO/RMO	PGT/PDT/MEM-PGT	Registrar/Resident	TOTAL	
≤5	0	0	2	22	4	28	
Row %	0.0	0.0	7.1	78.6	14.3	100.0	
Col %	0.0	0.0	33.3	73.3	18.2	28.0	
6 to 10	0	1	1	3	4	9	
Row %	0.0	11.1	11.1	33.3	44.4	100.0	
Col %	0.0	25.0	16.7	10.0	18.2	9.0	
11 to 20	7	1	1	5	14	28	
Row %	25.0	3.6	3.6	17.9	50.0	100.0	
Col %	18.4	25.0	16.7	16.7	63.6	28.0	
>20	31	2	2	0	0	35	
Row %	88.6	5.7	5.7	0.0	0.0	100.0	
Col %	81.6	50.0	33.3	0.0	0.0	35.0	
TOTAL	38	4	6	30	22	100	
Row %	38.0	4.0	6.0	30.0	22.0	100.0	
Col %	100.0	100.0	100.0	100.0	100.0	100.0	

Chi-square value: 96.5464; p-value :<0.0001

In Consultant, 7 (18.4%) emergency physicians had 11 to 20 years of work experience, 31 (81.6%) emergency physicians had >20years of work experience, In House Officer 1 (25.0%) emergency physician had 6 to 10 years of work experience, 1(25.0%) emergency physician had 11 to 20 years of work experience, 1(16.7%) emergency physician had >20 years of work experience. In MO/RMO, 2(33.3%) emergency physicians had ≤5 years of work experience, 1(16.7%) emergency physicians had 6 to 10 years of work experience,1(16.7%) emergency physician had 11 to 20 years of work experience and 2(33.3%) emergency physicians had >20years of work experience. In PGT/PDT /MEM-PGT, 22(73.3%) emergency physicians had ≤5years of work experience, 3(10.0%) emergency physicians had 6 to 10 years of work experience and 5(16.7%) emergency physicians had 11 to 20 years of work experience. In Registrar/Resident, 4(18.2%) emergency physicians had ≤5 years of work experience, 4(18.2%) emergency physicians had 6 to 10 years of work experience and 14(63.6%) emergency physicians had 11 to 20 years

of work experience. Association of years of work experience Group vs. CATEGORY was statistically significant ($p < 0.0001$).

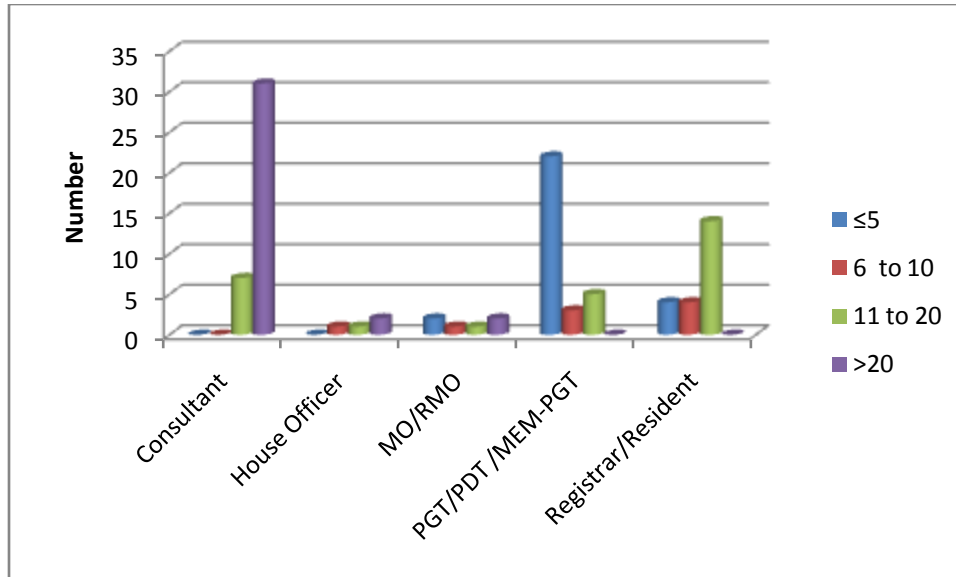


Figure 19:- Association between Years of work experience Group: category.

Table 20:- Q5: Do you know oral antibiotics can cause oral contraceptive failure?: Category.

CATEGORY						
Q5: Do you know oral antibiotics can cause oral contraceptive failure?	Consul tant	Hou se Offi cer	MO/R MO	PGT/P DT /MEM -PGT	Registrar/Re sident	TOT AL
No	21	2	6	26	17	72
Row %	29.2	2.8	8.3	36.1	23.6	100.0
Col %	55.3	50.0	100.0	86.7	77.3	72.0
Yes	17	2	0	4	5	28
Row %	60.7	7.1	0.0	14.3	17.9	100.0
Col %	44.7	50.0	0.0	13.3	22.7	28.0
TOTAL	38	4	6	30	22	100
Row %	38.0	4.0	6.0	30.0	22.0	100.0
Col %	100.0	100.0	100.0	100.0	100.0	100.0

Chi-square value: 12.0782; p-value: 0.0168

In Consultant, 17(44.7%) emergency physicians had knowledge that the oral antibiotics can cause oral contraceptive failure. In House Officer, 2(50.0%) emergency physicians had knowledge that the oral antibiotics can cause oral contraceptive failure. In PGT/PDT /MEM-PGT, 4(13.3%) emergency physicians had knowledge that the oral antibiotics can cause oral contraceptive failure. In Registrar/Resident, 5(22.7%) emergency physicians had knowledge that the oral antibiotics can cause oral contraceptive failure. Association of Q5 vs. CATEGORY was statistically significant ($p=0.0168$).

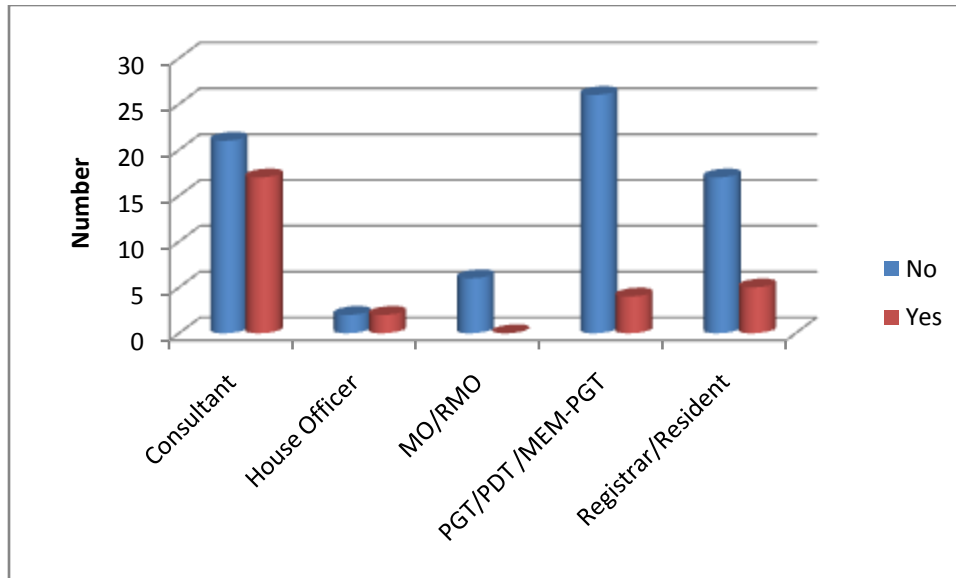


Figure 20:- Q5: Do you know oral antibiotics can cause oral contraceptive failure?: Category.

Table 21:- Q6: Do you take proper oral contraceptive history from the patient of child bearing age? : Category.

CATEGORY						
Q6: Do you take proper oral contraceptive history from the patient of child bearing age?	Cons ultant	Ho use Off icer	MO/ RMO	PGT/ PDT /ME M- PGT	Registrar/ Resident	TO TA L
No	25	4	1	19	10	59
Row %	42.4	6.8	1.7	32.2	16.9	100.
Col %	65.8	100	16.7	63.3	45.5	0
Yes	13	0	5	11	12	41
Row %	31.7	0.0	12.2	26.8	29.3	100.
Col %	34.2	0.0	83.3	36.7	54.5	0
TOTAL	38	4	6	30	22	100
Row %	38.0	4.0	6.0	30.0	22.0	100.
Col %	100.0	100	100.0	100.0	100.0	0
		.0				100.
						0

Chi-square value: 9.8504; p-value: 0.0430:

In Consultant, 13(34.2%) emergency physicians were able to take proper oral contraceptive history from the patient of child bearing age. In MO/RMO, 5(83.3%) emergency physicians were able to take proper oral contraceptive history from the patient of child bearing age. In PGT/PDT /MEM-PGT, 11(36.7%) emergency physicians were able to take proper oral contraceptive history from the patient of child bearing age. In Registrar/Resident, 12(54.5%) emergency physicians were able to take proper oral contraceptive history from the patient of child bearing age. Association of Q6 vs. CATEGORY was statistically significant (p=0.0430).

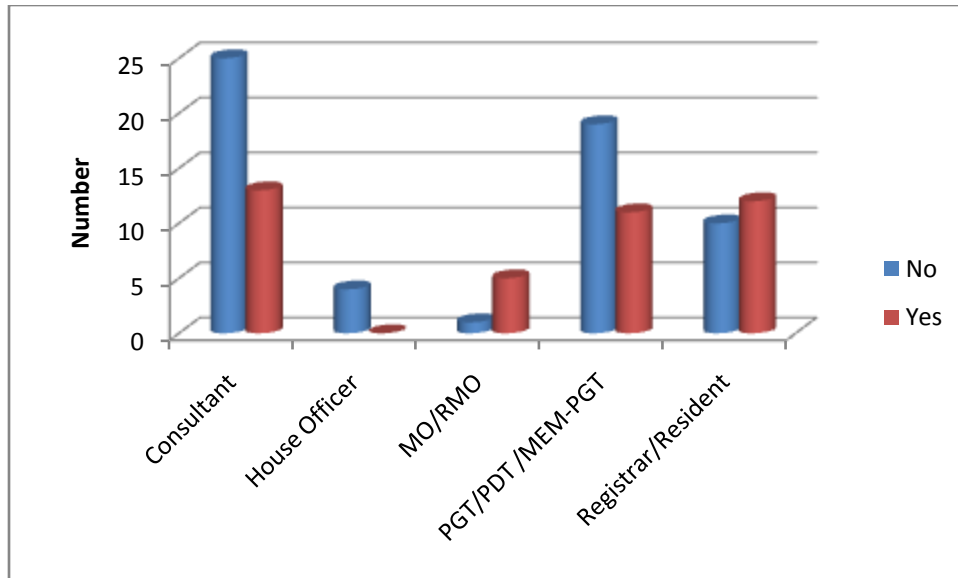


Figure 21:- Q6: Do you take proper oral contraceptive history from the patient of child bearing age?: Category.

Table 22:- Q7: .Do you know while prescribing broad spectrum antibiotics or any other medication to the patient of child bearing age on OCP what advice should be given?: Category.

CATEGORY						
Q7: Do you know while prescribing broad spectrum antibiotics or other medication to the patient of child bearing age on OCP what advice should be given?	Consultant	House Officer	MO/RMO	PGT/PDT/MEM-PGT	Registrar/Resident	TOTAL
No	29	4	1	19	13	66
Row %	43.9	6.1	1.5	28.8	19.7	10
Col %	76.3	10.0	16.7	63.3	59.1	0.0
Yes	9	0	5	11	9	34
Row %	26.5	0.0	14.7	32.4	26.5	10
Col %	23.7	0.0	83.3	36.7	40.9	0.0
TOTAL	38	4	6	30	22	10
Row %	38.0	4.0	6.0	30.0	22.0	0
Col %	100.0	10.0	100.0	100.0	100.0	10
						0.0
						10
						0.0

Chi-square value: 10.9331; p-value: 0.0273

In Consultant, 9(23.7%) emergency physicians had the knowledge about while prescribing broad spectrum antibiotics or other medication to the patient of child bearing age on OCP and what advice should be given. In MO/RMO, 5(83.3%) emergency physicians had the knowledge about while prescribing broad spectrum antibiotics or other medication to the patient of child bearing age on OCP and what advice should be given. In PGT/PDT/MEM-PGT, 11(36.7%) emergency physicians had the knowledge about while prescribing broad spectrum antibiotics or other medication to the patient of child bearing age on OCP and what advice should be given. In

Registrar/Resident, 9(40.9%) emergency physicians had the knowledge about while prescribing broad spectrum antibiotics or other medication to the patient of child bearing age on OCP and what advice should be given. Association of Q7 vs. CATEGORY was statistically significant (p=0.0273).

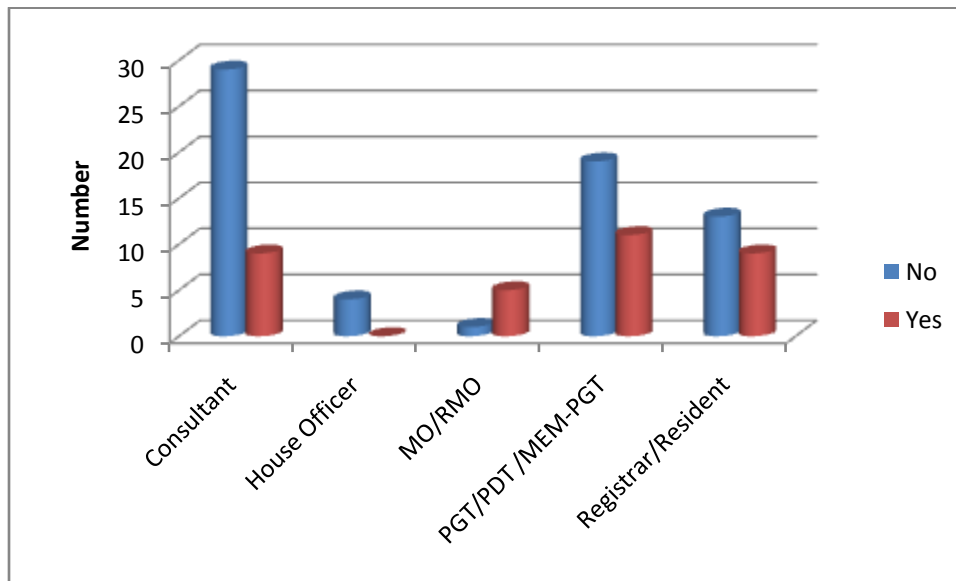


Figure 22:- Q7: .Do you know while prescribing broad spectrum antibiotics or other medication to the patient of child bearing age on OCP what advice should be given?: Category

Table 23:- Q8: Do you advice additional contraception while issuing antibiotics to women of child bearing age? : Category

CATEGORY							
Q8: Do you advice additional contraception while issuing antibiotics to women of child bearing age?		Consul t	Ho use Off ice r	MO/ RM O	PGT /PD T /ME M- PGT	Registrar /Resident	TO TA L
No		37	4	4	26	18	89
Row %		41.6	4.5	4.5	29.2	20.2	100.
Col %		97.4	100	66.7	86.7	81.8	89.0
Yes		1	0	2	4	4	11
Row %		9.1	0.0	18.2	36.4	36.4	100.
Col %		2.6	0.0	33.3	13.3	18.2	0
							11.0
TOTAL		38	4	6	30	22	100
Row %		38.0	4.0	6.0	30.0	22.0	100.
Col %		100.0	100	100.0	100.0	100.0	0
			.0				100.
							0

Chi-square value: 7.5954; p-value: 0.1076

In Consultant, 1(2.6%) emergency physician had advised additional contraception while issuing antibiotics to women of child bearing age. In MO/RMO, 2(33.3%) emergency physicians had advised additional contraception while issuing antibiotics to women of child bearing age. In PGT/PDT /MEM-PGT, 4(13.3%) emergency physicians had advised additional contraception while issuing antibiotics to women of child bearing age. In Registrar/Resident,

4(18.2%) emergency physicians had advised additional contraception while issuing antibiotics to women of child bearing age. Association of Q8 vs. CATEGORY was statistically not significant (p=0.1076).

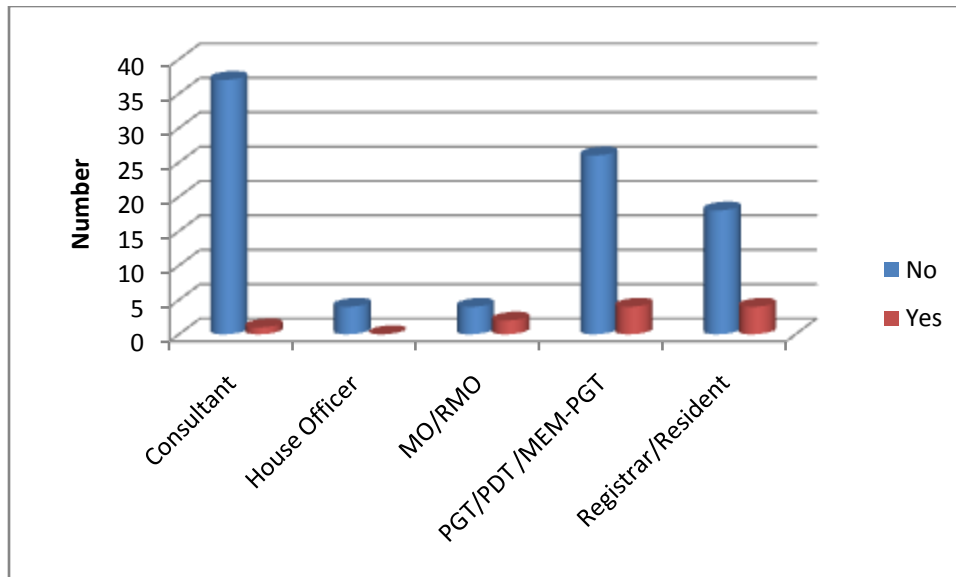


Figure 23:- Q8: Do you advise additional contraception while issuing antibiotics to women of child bearing age? : Category.

Table 24:- Q9: DO you have knowledge regarding interaction of Revamping with oral contraceptives? : Category

CATEGORY						
Q9: DO you have knowledge regarding interaction of Revamping with oral contraceptives?	Cons ultant	Ho use Off icer	MO/ RM O	PGT/ PDT /MEM- PGT	Registrar/ Resident	TO TA L
No	30	4	1	22	12	69
Row %	43.5	5.8	1.4	31.9	17.4	100.0
Col %	78.9	100.0	16.7	73.3	54.5	69.0
Yes	8	0	5	8	10	31
Row %	25.8	0.0	16.1	25.8	32.3	100.0
Col %	21.1	0.0	83.3	26.7	45.5	31.0
TOTAL	38	4	6	30	22	100
Row %	38.0	4.0	6.0	30.0	22.0	100.0
Col %	100.0	100.0	100.0	100.0	100.0	100.0

Chi-square value: 13.6497; p-value: 0.0085

In Consultant, 8(21.1%) emergency physicians had knowledge regarding interaction of Rifampin with oral contraceptives. In MO/RMO, 5(83.3%) emergency physicians had knowledge regarding interaction of Rifampin with oral contraceptives. In PGT/PDT /MEM-PGT, 8(26.7%) emergency physicians had knowledge regarding interaction of Rifampin with oral contraceptives. In Registrar/Resident, 10(45.5%) emergency physicians had knowledge regarding interaction of Rifampin with oral contraceptives. Association of Q9 vs. CATEGORY was statistically significant (p=0.0085).

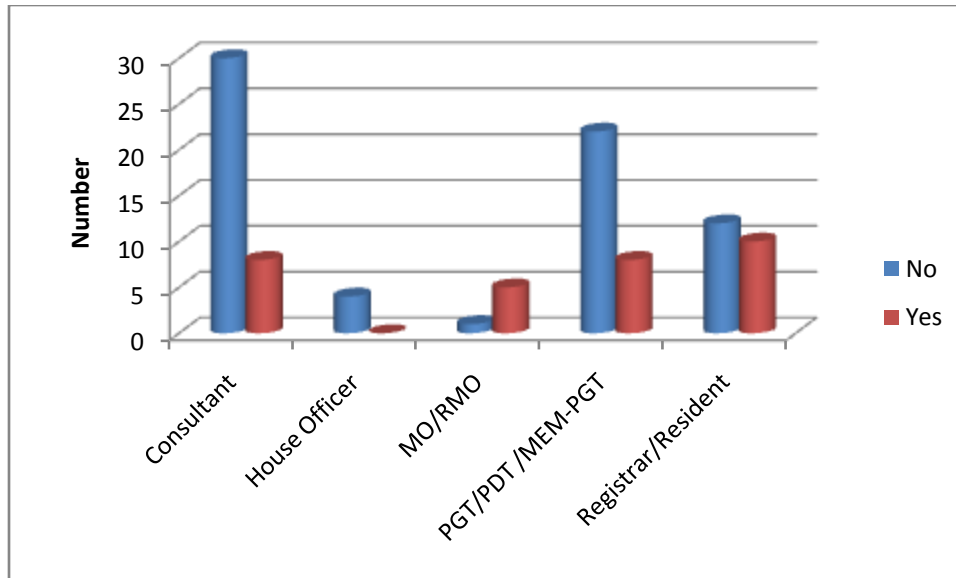


Figure 24:- Q9: DO you have knowledge regarding interaction of Revamping with oral contraceptives? : Category.

Table 25:- Q10: Do you know 1st sign of oral contraceptive failure after women of child bearing age takes oral antibiotics?: Category.

CATEGORY							
Q10: Do you know 1st sign of oral contraceptive failure after women of child bearing age takes oral antibiotics?		Consultant	House Officer	MO/RMO	PGT/PDT/MEM-PGT	Registrar/Resident	TOTAL
No		29	4	2	21	14	70
Row %		41.4	5.7	2.9	30.0	20.0	100.0
Col %		76.3	100.0	33.3	70.0	63.6	70.0
Yes		9	0	4	9	8	30
Row %		30.0	0.0	13.3	30.0	26.7	100.0
Col %		23.7	0.0	66.7	30.0	36.4	30.0
TOTAL		38	4	6	30	22	100
Row %		38.0	4.0	6.0	30.0	22.0	100.0
Col %		100.0	100.0	100.0	100.0	100.0	100.0

Chi-square value: 6.7016; p-value: 0.1525

In Consultant, 9(23.7%) emergency physicians had knowledge about the 1st sign of oral contraceptive failure after women of child bearing age takes oral antibiotics. In MO/RMO, 4(66.7%) emergency physicians had knowledge about the 1st sign of oral contraceptive failure after women of child bearing age takes oral antibiotics. In PGT/PDT/MEM-PGT, 9(30.0%) emergency physicians had knowledge about the 1st sign of oral contraceptive failure after women of child bearing age takes oral antibiotics. In Registrar/Resident, 8(36.4%) emergency physicians had knowledge about the 1st sign of oral contraceptive failure after women of child bearing age takes oral antibiotics. Association of Q10 vs. CATEGORY was not statistically significant (p=0.1525).

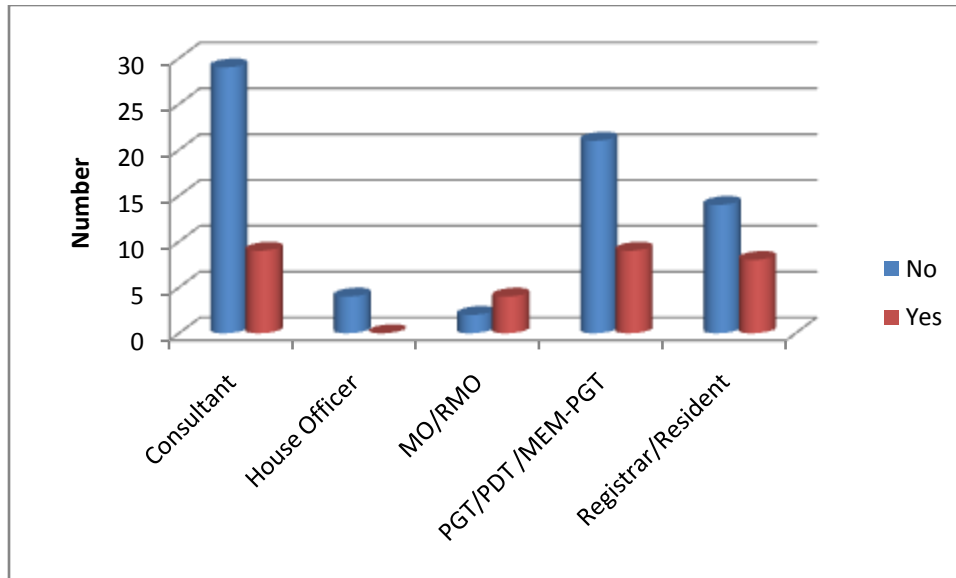


Figure 25:- Q10: Do you know 1st sign of oral contraceptive failure after women of child bearing age takes oral antibiotics?: Category.

Table 26:- Q11: If patient is on oral contraceptives whether documented advice is given about the additional use of contraception after prescribing oral antibiotics. : Category.

CATEGORY						
Q11: If patient is on oral contraceptives whether documented advice is given about the additional use of contraception after prescribing oral antibiotics.	Con sult ant	Ho us e Of fic er	MO /R MO	PG T/P DT /MEM - PG T	Registr ar/Resi dent	TO TA L
No	29	4	4	21	18	76
Row %	38.2	5.3	5.3	27.6	23.7	100
Col %	76.3	10.0	66.7	70.0	81.8	.0
Yes	9	0	2	9	4	24
Row %	37.5	0.0	8.3	37.5	16.7	100
Col %	23.7	0.0	33.3	30.0	18.2	.0
TOTAL	38	4	6	30	22	100
Row %	38.0	4.0	6.0	30.0	22.0	100
Col %	100.0	10.0	100.0	100.0	100.0	.0
	0	0.0	0	0		100.0
						.0

Chi-square value: 2.5522; p-value: 0.6353

In Consultant, 9(23.7%) emergency physicians had agreed to provide documented advice of additional use of contraception after prescribing oral antibiotics. In MO/RMO, 2(33.3%) emergency physicians had agreed to provide documented advice of additional use of contraception after prescribing oral antibiotics. In PGT/PDT /MEM-PGT, 9(30.0%) emergency physicians agreed to provide documented advice of additional use of contraception after prescribing oral antibiotics. In Registrar/Resident, 4(18.2%) emergency physicians had agreed to provide

documented advice of additional use of contraception after prescribing oral antibiotics. Association of Q11 vs. CATEGORY was not statistically significant ($p=0.6353$).

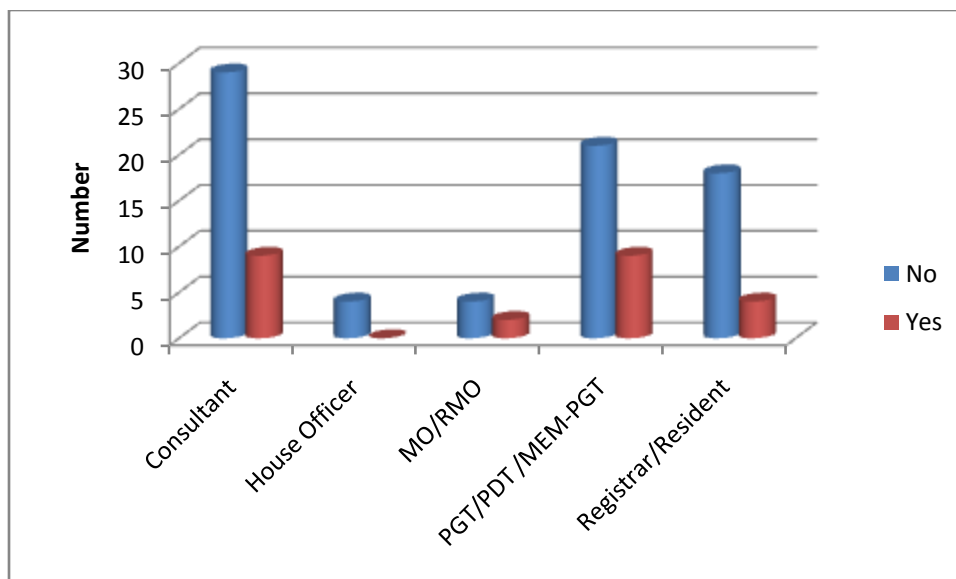


Figure 26:- Q11: If patient is on oral contraceptives whether documented advice is given about the additional use of contraception after prescribing oral antibiotics. : Category.

Table 27:- Q12: Tetracycline can cause oral contraceptive failure? : Category.

CATEGORY						
Q12: Tetracycline can cause oral contraceptive failure?	Consultant	House Officer	MO/RMO	PGT/PDT/MEM-PGT	Registrar/Resident	TOTAL
No	16	2	1	9	12	40
Row %	40.0	5.0	2.5	22.5	30.0	100.0
Col %	42.1	50.0	16.7	30.0	54.5	40.0
Yes	22	2	5	21	10	60
Row %	36.7	3.3	8.3	35.0	16.7	100.0
Col %	57.9	50.0	83.3	70.0	45.5	60.0
TOTAL	38	4	6	30	22	100
Row %	38.0	4.0	6.0	30.0	22.0	100.0
Col %	100.0	100.0	100.0	100.0	100.0	100.0

Chi-square value: 4.7873; p-value: 0.3098

In Consultant, 22(57.9%) emergency physicians had agreed that Tetracycline can cause oral contraceptive failure. In House Officer, 2(50.0%) emergency physicians had agreed that Tetracycline can cause oral contraceptive failure. In MO/RMO, 5(83.3%) emergency physicians had agreed that Tetracycline can cause oral contraceptive failure. In PGT/PDT/MEM-PGT, 21(70.0%) emergency physicians had agreed that Tetracycline can cause oral contraceptive failure. In Registrar/Resident, 10(45.5%) emergency physicians had agreed that Tetracycline can cause oral contraceptive failure. Association of Q12 vs. CATEGORY was not statistically significant ($p=0.3098$).

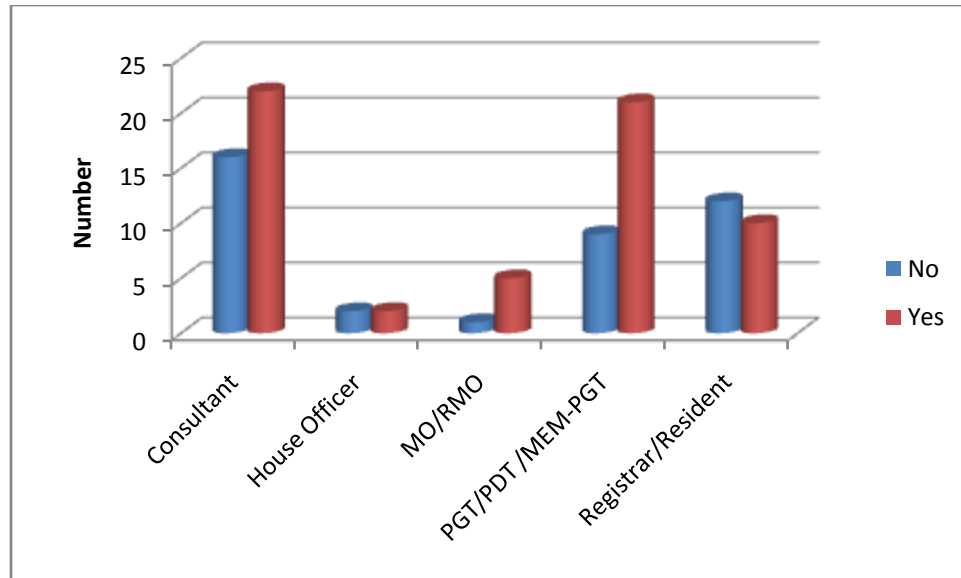


Figure 27:- Q12: Tetracycline can cause oral contraceptive failure? : Category.

Table 28:- Q13: Penicillin can cause oral contraceptive failure? : Category.

CATEGORY								
Q13: Penicillin can cause oral contraceptive failure?	Consultant	House Officer	MO/RMO	PGT/PDT/MEM-PGT	Registrar/Resident	TOTAL		
No	25	4	0	17	13	59		
Row %	42.4	6.8	0.0	28.8	22.0	100.0		
Col %	65.8	100.0	0.0	56.7	59.1	59.0		
Yes	13	0	6	13	9	41		
Row %	31.7	0.0	14.6	31.7	22.0	100.0		
Col %	34.2	0.0	100.0	43.3	40.9	41.0		
TOTAL	38	4	6	30	22	100		
Row %	38.0	4.0	6.0	30.0	22.0	100.0		
Col %	100.0	100.0	100.0	100.0	100.0	100.0		

Chi-square value: 12.2055; p-value: 0.0159

In Consultant, 13(34.2%) emergency physicians had agreed that Penicillin can cause oral contraceptive failure. In MO/RMO, 6(100.0%) emergency physicians had agreed that Penicillin can cause oral contraceptive failure. In PGT/PDT /MEM-PGT, 13(43.3%) emergency physicians had agreed that Penicillin can cause oral contraceptive failure. In Registrar/Resident, 9(40.9%) emergency physicians had agreed that Penicillin can cause oral contraceptive failure. Association of Q13 vs. CATEGORY was statistically significant (p=0.0159).

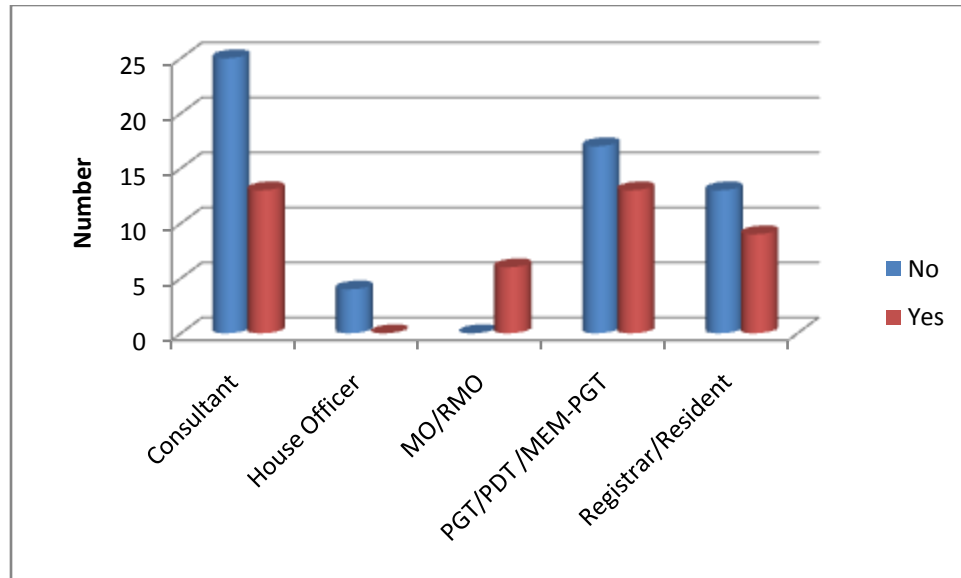


Figure 28:- Q13: Penicillin can cause oral contraceptive failure?: Category.

Table 29:- Q14: Aampicilin can cause oral contraceptive failure?: Category.

CATEGORY						
Q14: Aampicilin can cause oral contraceptive failure?	Consultant	House Officer	MO/RMO	PGT/PDT/MEM-PGT	Registrar/Resident	TOTAL
No	27	4	0	19	13	63
Row %	42.9	6.3	0.0	30.2	20.6	100.0
Col %	71.1	100.0	0.0	63.3	59.1	63.0
Yes	11	0	6	11	9	37
Row %	29.7	0.0	16.2	29.7	24.3	100.0
Col %	28.9	0.0	100.0	36.7	40.9	37.0
TOTAL	38	4	6	30	22	100
Row %	38.0	4.0	6.0	30.0	22.0	100.0
Col %	100.0	100.0	100.0	100.0	100.0	100.0

Chi-square value: 13.7682; p-value: 0.0081

In Consultant, 11(28.9%) emergency physicians had agreed that Aampicilin can cause oral contraceptive failure. In MO/RMO, 6(100.0%) emergency physicians had agreed that Aampicilin can cause oral contraceptive failure. In PGT/PDT /MEM-PGT, 11(36.7%) emergency physicians had agreed that Aampicilin can cause oral contraceptive failure. In Registrar/Resident, 9(40.9%) emergency physicians had agreed that Aampicilin can cause oral contraceptive failure. Association of Q14 vs. CATEGORY was statistically significant (p=0.0081).

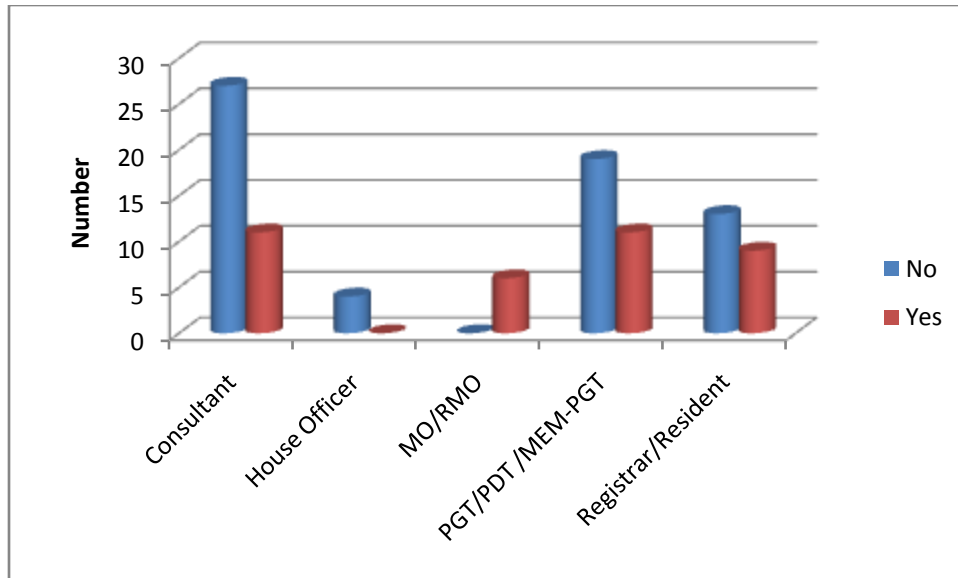


Figure 29:- Q14: Aampicilin can cause oral contraceptive failure?: Category.

Table 30:- Q17: Do you record advice given in the E/D notes? : Category.

CATEGORY						
Q17: Do you record advice given in the E/D notes?	Consultant	House Officer	MO/RMO	PGT/PDT/MEM-PGT	Registrar/Resident	TOTAL
No	26	3	0	19	12	60
Row %	43.3	5.0	0.0	31.7	20.0	100.0
Col %	68.4	75.0	0.0	63.3	54.5	60.0
Yes	12	1	6	11	10	40
Row %	30.0	2.5	15.0	27.5	25.0	100.0
Col %	31.6	25.0	100.0	36.7	45.5	40.0
TOTAL	38	4	6	30	22	100
Row %	38.0	4.0	6.0	30.0	22.0	100.0
Col %	100.0	100.0	100.0	100.0	100.0	100.0

Chi-square value: 10.9094; p-value: 0.0276

In Consultant, 12(31.6%) emergency physicians had recorded the advice given in the E/D notes. In House Officer, 1(25.0%) emergency physicians had recorded the advice given in the E/D notes. In MO/RMO, 6(100.0%) emergency physicians had recorded the advice given in the E/D notes. In PGT/PDT /MEM-PGT, 11(36.7%) emergency physicians had recorded the advice given in the E/D notes. In Registrar/Resident, 10(45.5%) emergency physicians had recorded the advice given in the E/D notes. Association of Q17 vs. CATEGORY was statistically significant (p=0.0276).

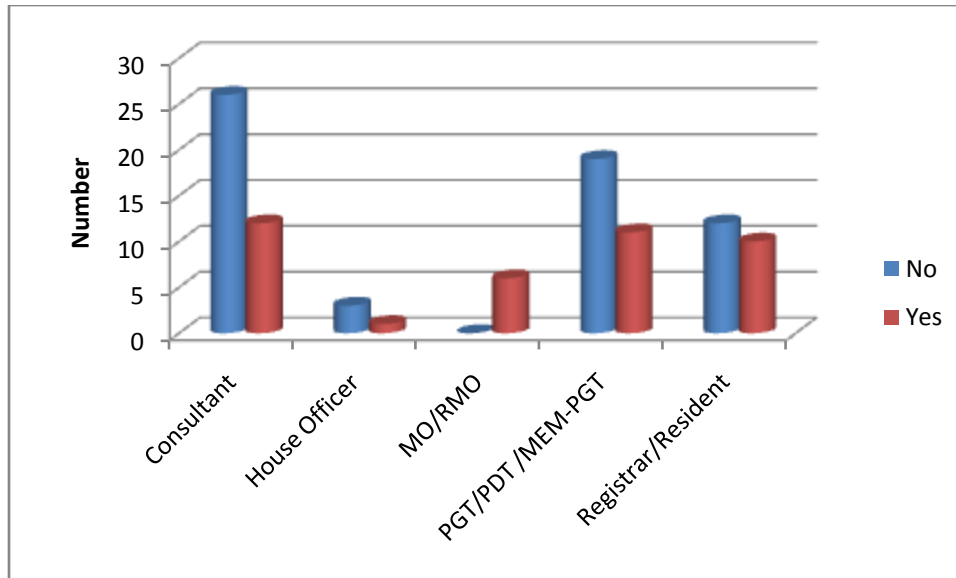


Figure 30:- Q17: Do you record advice given in the E/D notes?: Category.

Table 31:- Q18: Do you feel a patient information leaflet would be a good idea? : Category.

CATEGORY						
Q18: Do you feel a patient information leaflet would be a good idea?	Consultant	House Officer	MO/RMO	PGT/PDT/MEM-PGT	Registrar/Resident	TOTAL
No	4	0	0	2	1	7
Row %	57.1	0.0	0.0	28.6	14.3	100.0
Col %	10.5	0.0	0.0	6.7	4.5	7.0
Yes	34	4	6	28	21	93
Row %	36.6	4.3	6.5	30.1	22.6	100.0
Col %	89.5	100.0	100.0	93.3	95.5	93.0
TOTAL	38	4	6	30	22	100
Row %	38.0	4.0	6.0	30.0	22.0	100.0
Col %	100.0	100.0	100.0	100.0	100.0	100.0

Chi-square value: 1.6873; p-value: 0.7930

In Consultant, 34(89.5%) emergency physicians felt that a patient information leaflet would be a good idea. In House Officer, 4(100.0%) emergency physicians felt that a patient information leaflet would be a good idea. In MO/RMO, 6(100.0%) emergency physicians felt that a patient information leaflet would be a good idea. In PGT/PDT /MEM-PGT, 8(93.3%) emergency physicians felt that a patient information leaflet would be a good idea. In Registrar/Resident, 21(95.5%) emergency physicians felt that a patient information leaflet would be a good idea. Association of Q18 vs. CATEGORY was not statistically significant (p=0.7930).

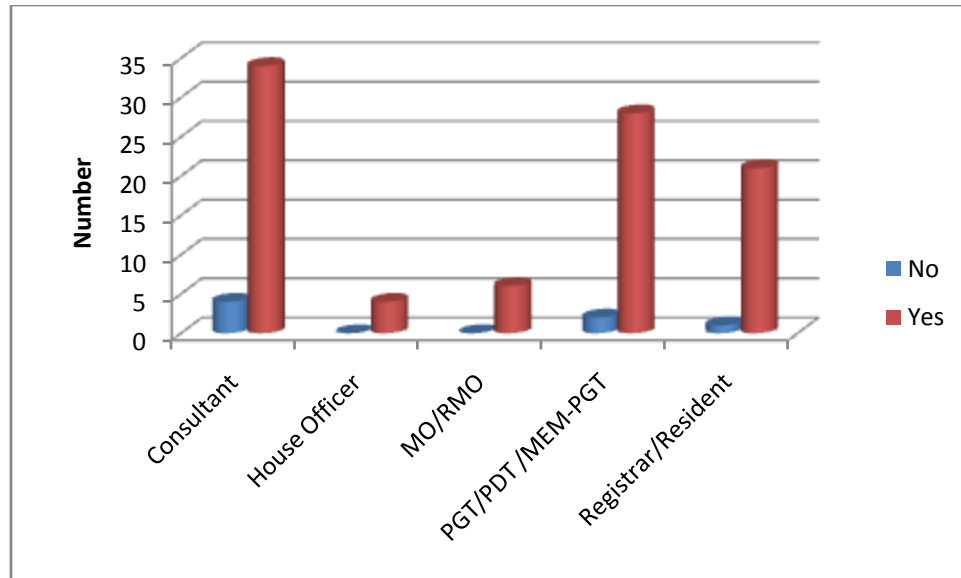


Figure 31:- Q18: Do you feel a patient information leaflet would be a good idea?: Category

Table 32:- Distribution of all parameters.

		Frequency	Percent
Q5. Do you know oral antibiotics can cause oral contraceptive failure?	No	72	72.0%
	Yes	28	28.0%
Q6.Do you take proper oral contraceptive history from the patient of child bearing age?	No	59	59.0%
	Yes	41	41.0%
Q7.Do you know while prescribing broad spectrum antibiotics to the patient of child bearing age on OCP what advice should be given?	No	66	66.0%
	Yes	34	34.0%
Q8.Do you advice additional contraception while issuing antibiotics to women of child bearing age?	No	89	89.0%
	Yes	11	11.0%
Q9. DO you have knowledge regarding interaction of Rifampin with oral contraceptives?	No	69	69.0%
	Yes	31	31.0%
Q10.Do you known 1st sign of oral contraceptive failure after women of child bearing age take oral antibiotics?	No	70	70.0%
	Yes	30	30.0%
Q11.If patient is on oral contraceptives whether documented advice is given about the additional use of contraception after prescribing oral antibiotics.	No	76	76.0%
	Yes	24	24.0%
Q12.Tetracyclin can cause oral contraceptive failure?	No	40	40.0%
	Yes	60	60.0%
Q13.Penicillins can cause oral contraceptive failure?	No	59	59.0%
	Yes	41	41.0%
Q14.Aampicilin can cause oral contraceptive failure?	No	63	63.0%
	Yes	37	37.0%
Q17.Do you record advice given in the E/D notes?	No	60	60.0%
	Yes	40	40.0%
Q18.Do you feel a patient information leaflet would be a good idea?	No	7	7.0%
	Yes	93	93.0%

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Discussion:-

We found that 26(26.0%) emergency physicians were under ≤ 30 years old, 32(32.0%) emergency physicians were under 31-40 years old, 23(23.0%) emergency physicians were 41-50 years old and 19(19.0%) emergency physicians were 51-60 years old. 33(33.0%) emergency physicians were female and 67(67.0%) emergency physicians were male.

Mullan MH et al³¹ (1999) found that Women aged 15-50 who had been issued with broad spectrum antibiotics. The level of knowledge regarding contraceptive advice that was given to women taking the OCP among doctors working in an A&E department was poor.

Abdulghani HM et al⁴⁴ (2009) found that in total, 45 interviews were conducted, with a response rate of 100%, with faculty physicians (33%), residents (27%), medical officers (40%), 64% female physicians and 36% male ; the majority of them (64%) were married. About 38% of the participants incorrectly chose irregular menstruation as the most common side-effect of progestin-only emergency OCP, and 42% were unsure while only 33% answered that emergency contraception was not an abortifacient. Forty percent of the physicians advised emergency contraception in the past. The vast majorities (71%) of the physicians were familiar with emergency contraception, yet inadequacies in knowledge inaccuracies were identified.

Our study showed that 38(38.0%) emergency physicians were best described by the Consultant, 4(4.0%) emergency physicians were best described by the House Officer, 6(6.0%) emergency physicians were best described by the MO/RMO, 30(30.0%) emergency physicians were best described by the PGT/PDT /MEM-PGT and 22(22.0%) emergency physicians were best described by the Registrar/Resident.

Gibson J et al³⁸ (1994) found that this paper considers the possible interactions between oral contraceptive pills and antibiotics, in the context of modern dental practice. A review of the literature on such interactions leads to the conclusion that current national guidelines on the use of alternative birth control measures during a course of broad spectrum antibiotics in women also using the OCP should be stressed on and encouraged as part of good clinical practice. A patient information leaflet may be considered as a useful way of giving such advice to female patients.

Matos C et al³⁹ (2015) found that most of the analyzed antibiotics decreased the level or effect of OC indirectly by altering intestinal flora, remaining a low risk of contraceptive failure. However, the main adverse reactions reported with the use of antibiotics include: nausea, vomiting and diarrhea, which could also have interference on the efficacy of OC's. Furthermore, some antibiotics can alter the level or effect of OC's by affecting hepatic/ intestinal enzymes metabolism or by P-glycoprotein (MDR1) efflux transporter. Some potential severe interactions were identified and the mechanisms involved were identified. Pharmacy professionals' play an important role regarding the conveyance of information to women consuming OC's that will start antibiotic therapy. Patients should be advised to add extra precautions during the therapy and for seven days after finish the antibiotic.

We found that 28(28.0%) emergency physicians had knowledge that the oral antibiotics can cause oral contraceptive failure. 41(41.0%) emergency physicians were able to take proper oral contraceptive history from the patient of child bearing age. 34(34.0%) emergency physicians had the knowledge about while prescribing broad spectrum antibiotics to the patient of child bearing age on OCP and what advice should be given. 11(11.0%) emergency physicians had advised additional contraception while issuing antibiotics to women of child bearing age. 31(31.0%) emergency physicians had knowledge regarding interaction of Rifampin with oral contraceptives.

It was showed that 30(30.0%) emergency physicians had knowledge about the 1st sign of oral contraceptive failure after women of child bearing age takes oral antibiotics 24(24.0%) emergency physicians had agreed to provide documented advice of additional use of contraception after prescribing oral antibiotics.

Dickinson BD et al³³ (2001) found that at least 30 cases have been reported of pregnancies turn out in women taking OCs and antibiotics, in particular rifampin. Approximately 20% of pregnant women reporting to family planning or abortion clinics reported associated with OC and antibiotic use. In combined results obtained from comparatively small populations, oral antibiotics, with the exception of rifampin, have not significantly affected the pharmacokinetics of ethinyl estradiol, levonorgestrel, and norethindrone or decrease the serum concentrations of

gonadotropins. However, individual patients have been identified who experienced notable decreases in the plasma concentration of these components of OCs and who appeared to ovulate. Rifampin reduces the effectiveness of OCs.

Zhanel GG et al³⁵ (1999) found that reports of oral contraceptive failure seem to be most numerous in women using preparations containing 30 µg of ethinylestradiol and 150 µg of levonorgestrel. Rifampin is the only antibiotic that has been reported to decrease plasma estrogen concentrations. When taking rifampin, OCPs cannot be relied upon and a second birth control method is necessary. Amoxicillin, ampicillin, griseofulvin, metronidazole and tetracycline have been linked with contraceptive failure in three or more clinical cases. When these agents are used, the clinician should discuss the available data with the patient and suggest a second form of contraception. Other antibiotics are most likely safe to use along with oral contraceptives.

Bauer KL et al³⁷ (2005) found that Given this, 4 retrospective surveys on women taking OCs who were treated with antibiotics (erythromycin, tetracycline, minocycline, penicillin, ampicillin, sulfa, cephalosporins) found contraceptive failure rates of 1.2% to 1.6%, within the range for typical populations. Numerous studies have looked at OC serum levels with and without antibiotic treatment. These studies show that the concomitant use of antibiotics (ampicillin, tetracycline, doxycycline, metronidazole, erythromycin, clarithromycin, temafloxacin, fluconazole, ciprofloxacin, or ofloxacin) did not reduce serum levels of either the estrogen or progestin components of the OCP. It was found that 60(60.0%) emergency physicians had agreed that Tetracycline can cause oral contraceptive failure. 41(41.0%) emergency physicians had agreed that Penicillins can cause oral contraceptive failure. 37(37.0%) emergency physicians had agreed that Ampicillin can cause oral contraceptive failure. 40(40.0%) emergency physicians had recorded the advice given in the E/D notes. 93(93.0%) emergency physicians felt that a patient information leaflet would be a good idea. The mean Work experience (mean±s.d.) of emergency physicians was 2.7000 ± 1.2185 years.

Conclusion:-

Our study showed that most of the emergency physicians do not have the knowledge that oral antibiotics can cause oral contraceptive failure; however consultants have better knowledge and awareness than others.

There were a higher proportion of emergency physicians who were able to take proper oral contraceptive history from the patient of child bearing age on OCP.

It was found that higher proportion of emergency physicians do not know what advice should be given while prescribing broad spectrum antibiotics to the patient of child bearing age on OCP.

We also found that Most of the emergency physicians do not have knowledge regarding interaction of Rifampin with oral contraceptives but higher proportion of doctors have the knowledge that Tetracycline can cause oral contraceptive failure. Present study also found that higher proportion of doctors did not have the knowledge that Penicillins and Ampicillin can cause oral contraceptive failure.

Higher percentage of doctors documented the advice given about the additional use of contraception after prescribing oral antibiotics.

Almost all emergency physicians felt that a patient information leaflet would be a good idea.

There is a knowledge deficit among emergency physicians regarding the interaction between oral antibiotics and other medication with OCP.

Limitations Of The Study:

In spite of every sincere effort my study has lacunae.

The notable short comings of this study are:

1. The sample size was small. Only 100 cases are not sufficient for this kind of study.
2. The study was carried out in a tertiary care hospital, so hospital bias cannot be ruled out.

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Data collection form:

Questionnaire:

Please tick the appropriate boxes:

1. What is your age?

<25 26-35 36-50 51-60 >60

2. Are you male or female?

3. Which category best describe your present position?

House officer MO/RMO PGT/PDT Registrar/Resident Consultant

4. How many years of experience in the health sector do you presently have?

<1 year .1-5 .6-10 .11-20 .>20

5. Do you know oral antibiotics can cause oral contraceptive failure?
Yes / No
6. Do you take proper oral contraceptive history from the patient of child bearing age?
Yes/No
7. Do you know while prescribing broad spectrum antibiotics to the patient of child bearing age what advice should be given?
Yes / No
8. Do you advice additional contraception while issuing antibiotics to women of child bearing age?
Yes / No
9. DO you have knowledge regarding interaction of Rifampin with oral contraceptives?
Yes/No
10. Do you known 1st sign of oral contraceptive failure after women of child bearing age takes oral antibiotics?
Yes/No
11. If patient is on oral contraceptives whether documented advice is given about the additional use of contraception after prescribing oral antibiotics.
Yes/No
12. Tetracycline can cause oral contraceptive failure?
Yes /No
13. Penicillins can cause oral contraceptive failure?
Yes/NO
14. Aampicilin can cause oral contraceptive failure?
Yes / No
15. What advice would be given to women who had been issued with a broad spectrum antibiotic or other medication if they were currently taking the OCP?
16. what advice would be given in relation to running two pill packets back to back if the woman was near the end of her pill packet.
17. Do you record advice given in the E/D notes?
Yes/No
18. Do you feel a patient information leaflet would be a good idea?
Yes/No.