CAUSES OF INFERTILITY IN FEMALES: EVALUATED BY DIAGNOSTIC LAPAROSCOPY AT A TERTIARY CARE CENTRE

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ABSTRACT

Objective: To determine the frequency of various causes of infertility through diagnostic laparoscopy.

Study Design: Cross sectional comparative study.

Place and Duration of Study: The study was conducted in gynaecology/obstetrics department unit I of Military Hospital Rawalpindi from May 2011 - May 2012.

Patients and Methods: A total of 50 patients were recruited in the study through outpatient clinic, 32 out of 50 had primary infertility and 18 had secondary infertility. Diagnostic laparoscopy was performed under general anesthesia and findings were recorded.

Result: The mean age of patients was 26.4 years. Out of 50 patients 20 (40%) had polycystic ovaries, 15 (30%) had tubal blockage, 7 (14%) had endometriosis and 2 (4%) had fibroids while 6(12%) were found to have normal pelvis and no pathology was detected.

Conclusion: Polycystic ovaries was found to be the major cause of infertility in this study group, followed by tubal factor infertility either secondary to pelvic inflammatory disease or otherwise, both these causes are treatable to a variable extent and fertility can be resumed if managed properly.

Keywords: Infertility, Laparoscopy, Polycystic ovaries.

INTRODUCTION

Infertility is the inability of a couple to conceive following 12-24 months of regular unprotected intercourse[1]. Failure to achieve pregnancy causes enormous distress to those affected. Factors that could influence trends in the prevalence of infertility include the incidence of sexually transmitted infections (STIs) such as Chlamydia trachomatis in the young[2]. In addition environmental factors may influence male factor infertility[3] and there could be possible effects on female fertility of delayed child bearing as determined by changes in lifestyles and working patterns. Couples seeking advice for infertility and physical examination should have a prompt access to an integrated multidisciplinary service. Initial investigations frequently lead to a possible cause. However, despite the use of investigations like tests of semen quality, ovulation and tubal patency their predictive value for live birth is debatable[4]. Out of various causes of female factor infertility, disturbance in ovulation is the principal factor in about 20% of couples, tubal pathology is a contributory factor in 15-30% of women with infertility. Endometriosis is a debilitating condition which has associations with infertility, particularly where there is anatomical distortion of pelvis. Women who are susceptible to the condition may have genetic, immunological, hormonal and environmental factors contributing to the problem[5]. However as subfertility is divided in two main groups, the primary and secondary subfertility. The prevelance of causes is different in these two groups. Thorough history and physical examination is the mainstay of diagnosis and management. Various investigations are performed in the diagnostic workup of women with infertility. Laparoscopy is currently regarded as the most reliable diagnostic tool for tubal causes of subfertility. Since laparoscopy visualizes morphological abnormalities of the fallopian tubes directly, it is generally accepted as the reference standard for determination of the accuracy of other

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diagnostic tools for tubal pathology such as hysterosalpingography (HSG)[6]. Laparoscopy should be carried out in a systematic fashion and a written record together with photographs if possible or diagrams to record findings is often helpful in explaining to patients what has been seen and done as well as a formal record of the findings. In this study we performed diagnostic laparoscopy on cases of infertility to find out the possible causative factors.

PATIENTS AND METHODS

The cross sectional comparative study was conducted in Military Hospital Rawalpindi in the department of Gynaecology / Obstetrics Unit I, from May 2011 – May 2012 over a period of 1 year. All those women who were unable to conceive after 12 months of regular intercourse were included. The study group included majority of patients from military back ground. For military personnel living together for longer period of time for the couple is generally not possible due to service requirements. Hence early resort to investigation and treatment of infertility is usually carried out. Hysterosalpingogram (HSG) was advised and carried out in all patients, only 2 of them could not undergo HSG due to patient's non compliance. Those with male factor infertility, any contraindication to general anesthesia or laparoscopy e.g severe pre-existing cardiovascular or respiratory disease, generalized peritonitis, midline surgical scars, intestinal obstruction treated surgically etc were excluded from the study. The sample consisted of 50 patients. The patients were recruited from outdoor clinics. Thorough history and clinical examination was carried out. Pre-anesthesia assessment was done. Written and informed consent was taken. Hormonal profile including follicle stimulating hormone (FSH), lutenizing hormone (LH) on 2nd-5th day and Serum Progesterone on 22nd day was done, ultrasound pelvis was done in all patients. Semen analysis was also done. Laparoscopy was performed under general anesthesia, in Trendlenburg's position; Sub umblical incision was given. The pelvis was inspected using double puncture technique. The uterus and broad ligament were inspected for any fibroids, endometriotic spots, adhesions etc. Ovaries and ovarian fossa were inspected. The size, colour and appearance was checked to look for the signs of poly cystic ovaries (PCOS) or ovarian endometriosis. The fallopian tubes were inspected for shape, length and peritubal adhesions. The patency of fallopian tubes was ascertained by instilling methylene blue dye into uterine cavity through the cervix and its spill through the fimbrial ends was checked. The pouch of Douglas was also visualized for the presence of endometriosis or peritoneal fluid.The findings were recorded and kept for future reference. The data was analysed on SPSS version 17, descriptive statistics were given in terms of frequencies and percentages. The chi square test was applied to compare the percentages of laproscopic findings among the primary and secondary infertility groups. A p value <0.05 was considered as significant.

RESULTS

In this study out of 50 patients, majority, 19 (38%) were between 26-30 yrs age group, this was closely followed by 17 (34%) that were in 20-25 yrs age group, then between 30-35 yrs 14 (28%). The mean age of patients was 26.5 years. The mean duration of infertility was 3.2 years in primary subfertility group and 6.3 years in secondary subfertility group.

In the primary subfertility group (n=32) 11 (34%) were asymptomatic, 21 (65%) had other associated symptoms. Out of them 9 (28%) had hirsuitism and weight gain, 5 (15%) had severe dysmenorrhea and lower abdominal pain, while 7 (21%) had irregular menstrual cycle. In the secondary subfertility group (n=18), 8 (44%) had no associated symptoms, 6 (33%) had vague lower abdominal pain while 4(22%) had irregular menstrual cycle . On laparoscopy, out of 50, 44 patients i.e 88% had abnormal findings and rest 6 (12%) had normal pelvic findings. Twenty (40%) had enlarged ovaries with polycystic look, 15 (30%) had bilateral (9) or unilateral (6) tubal blockage alongwith flimsy peritubal adhesions, 7 (14%) had endometriosis, 2 (4%) had fibroids. Comparison of laparoscopic findings between primary and secondary subfertility group is given in table-2. Post operative recovery was smooth in majority of

patients, 2 patients experienced vomiting and vague abdominal discomfort on 1st post operative day which was relieved by symptomatic treatment. Three patients developed fever and dry cough.

DISCUSSION

Laparoscopy is the most informative and accurate test for diagnosing the cause of infertility. It is a mandatory procedure for a comprehensive and complete assessment of the infertile couple. The incidence of infertility varies between 5% and 15%. The female factor contributes most (i.e 40-55%) followed by male factor (30-40%) both partners (10%) and unexplained (10%)[7]. It is still not found to be accurate enough as 40% of infertile couples do not attend a hospital or clinic for treatment[8]. In Pakistan especially, most patients use alternative methods and visit un-trained health practitioners for the treatment of infertility.

Considering female age as the most important determinant for spontaneous as well as assisted conception, American Society of Reproductive Medicine 2006 defines 35 years as the limit in fertility terms[9]. In this study we found that the group of women reporting to the military set up of infertility usually report earlier i.e 17 women (34%) in 20-25 years age group and none more than 35 years of age. The reason for this is probably the type of lifestyle their husbands have to adopt. Service requirements tend to keep them away from the families for most of the time. Probably this makes them more apprehensive and they report early for treatment of infertility to avail whatever chance they have for conception. While Nousheen reported (21.87%) 7 patients with primary infertility and 4 (22.2%) of secondary infertility were more than 35 years of age in the civil set-up[10]. The duration of infertility at which the patients reported was maximum i.e 90% between 2-5 years duration in primary infertility group in the present study, while it was almost equal in the secondary infertility group where most presented at 2-5 years and 5-7 years duration, while no patient presented before 2 years for investigation and treatment of infertility. Similar trend was noted by a study conducted in Hyderabad by Nousheen[10]. Main associated symptom in this study was hirsuitism, weight gain, pelvic pain and irregular menstrual cycle. This is almost the same world over both internationally and nationally, studies have recommended that those with associated symptoms like hirsuitism and chronic pelvic pain should be investigated early especially using laparoscopy as the main diagnostic tool, with the aim to find out polycystic ovaries, pelvic adhesions and pelvic inflammatory disease[11].

Table-I: Distribution of cases according to age.

Age in yrs	No of cases	Percentage
20-25 yrs	17	34%
26-30 yrs	19	38%
30-35 yrs	14	28%

Table- 2: Laparoscopic findings of the two groups.

Finding	Primary subfertility	Secondary subfertility	Total	*p* value
PCO	14 (43%)	6 (33%)	20 (40%)	0.05
Tubal blockage	4 (12%)	11 (61%)	15 (30%)	0,001
Endometriosis	4 (12%)	3 (16%)	7 (14%)	0.132
Fibroids	2 (4%)	0	2 (4%)	0.108
Normal Pelvic organs	4 (12%)	2 (11%)	6 (12%)	0.190

In this study abnormal findings were detected in (88%) of the patients compared to 70% reported by Preeti[7]. This high pickup rate is probably related to the fact that laparoscopy in the current study is the second line investigation and patients are already scrutinized on the basis of clinical examination, HSG and hormonal profile and those who are found to be eligible to second line of investigations are booked for laparoscopy. Commonly found pathologies were polycystic ovaries, blocked tubes and peritubal adhesions

and endometriosis. The prevalence of polycystic ovarian syndrome (PCOS) in asymptomatic women is between 16-33%[12]. In this study the incidence of polycystic ovarian disease is 40%, 43% and 33% in primary and secondary subfertility groups respectively. The difference in the prevelance of PCOS in the two groups is statistically significant (*p*-0.05). Laparoscopy is not mandatory for the diagnosis of PCOS but it helps exclude other causes and sometimes ovarian drilling can be done at the same time in resistant cases. Tubal disease contributes to 15-20% in cases of primary infertility and around 40% in cases of secondary infertility . In this study tubal disease i.e occlusion with peritubal adhesions was found in 12% and 61% in primary and secondary subfertility patients respectively (*p*-0.001) and overall 30% in total, where compared to a result from a study in Hyderabad, Gulfareen reported 10% and 30% in primary and secondary infertility[14]. A Thai study shows tubal factor infertility as the most common cause of infertility[15]. Endometriosis was found in 12% patients with primary infertility and 16% in patients with secondary infertility (*p*-0.132) in the present study, while in another study by Mahmood, it was found to be 13.6% in cases of primary infertility and 2.52% in cases of secondary infertility[16]. Laparoscopy for the diagnosis of infertility is very effective and accurate. Its high pick up rate is also reported in other studies.

CONCLUSION

Amongst the identifiable causes of subfertility the polycystic ovaries and tubal blockade is predominant. The PCOS is significantly more common in primary subfertility group while tubal blockade is more common in secondary subfertility group.

CONFLICT OF INTEREST

This study has no conflict of interest to declare by any author.

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