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Research Article

Comparison of Antibiotics and Prebiotics in Treatment of Pelvic Inflammatory Disease

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Abstracts: ***Objectives:*** Pelvic inflammatory disease (PID) refers to an infectious and inflammatory disorder of the female upper genital tract. It is common among young sexually active individuals and is a major health problem both in the developed and developing countries. It is usually a polymicrobial infection, however, Chlamydia trachomatis is the commonest causative agent transmitted sexually. PID is diagnosed by history and clinical examination. The treatment is initially empiric. Only Antibiotcs are good in treatment for PID and 'Antibiotics with Prebiotics' are new promising treatment mode for same. This comparative study aimed to measure efficiency and compliance of only Antibiotcs versus Antibiotics with Prebiotics in the treatment of mild, uncomplicated acute PID. ***Methods:*** A descriptive cross-sectional study was conducted in randomly selected 28 consecutive outpatients with mild uncomplicated acute PID. Comparative outcome of Antibiotics and Antibiotics with Prebiotics in correlation with reduction of amount, consistency and malodor of vaginal discharge along with reduction in fornical tenderness, compliance and frequency of adverse drug reactions was done. ***Results:*** Among 28 cases 14 (50%) were treated with oral Antibiotics and 14 (50%) with oral Antibiotics with Prebiotics. Comparative analysis on reduction of amount, consistency, malodor of vaginal discharge and reduction of fornical tenderness were significant, showing Antibiotics with Prebiotics more effective than Antibiotics. ***Conclusion:*** Antibiotics with Prebiotics has better efficiency and compliance over only Antibiotics in the treatment of mild, uncomplicated, acute PID**.**
Keywords: Antibiotics, chlamydia trachomatis, Antibiotics with Prebiotics, pelvic inflammatory disease, efficiency.

INTRODUCTION

Pelvic inflammatory disease (PID) refers to an infectious and inflammatory disorder of the female upper genital tract that comprises the uterus, fallopian tubes, adjacent parametrium and the overlying peritoneum (Weström, L. A. R. S. *et al.*, 1992). Dissemination of infection and inflammation may occur to the abdomen and perihepatic structures (Wiesenfeld, H. C. *et al.*, 2012). During the last decade, there is increasing incidence of PID among sexually active young couples especially commercial sex workers and has become a major health problem both in the developed and in developing countries (Fox, K.K., & Behets, F.M. 1995).

Exact incidence and prevalence of PID is still not known in Nepal and such comparative study has not been done yet. WHO in 2005, estimated around 448 million curable new cases of sexually transmitted infections (STIs) in age group 15-49 years occur annually (Low, N. *et al.*, 2006). Women of Sub-Saharan Africa and Southeast Asia, who are in resource limited regions, are at increased risk of sequelae and complications. In developed countries, annual incidence of PID is around 10-20 per 1000 reproductive age group women (Kamwendo, F. *et al.*, 1998).

Pelvic inflammatory disease starts with the infection of vagina and cervix that ascends up. Commonest sexually transmitted causative agent associated with PID is *Chlamydia trachomatis* (serovars D-K). Other organisms include *Neisseria gonorrhoeae, Gardnerella vaginalis, Hemophilus influenza,* and *Anaerobes* such as *Peptococcus and Bacteroides species* (Mylonas, I. 2012). PID is primarily a polymicrobial infection in almost 30-40% of cases which usually starts with an isolated infection with *Chlamydia trachomatis* or *Neisseria gonorrhoeae* (Herzog, S. A. *et al.*, 2012). PID may occur from a granulomatous salpingitis caused by *Mycobacterium tuberculosis* or *Schistosoma species* in some regions, and it may be commonly associated with HIV infection (Sorvillo, F. *et al.*, 2001; & Crossby, R. *et al.*, 2002).

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Multiple sexual contacts, a prior history of STIs and sexual abuse are some of the risk factors for PID (Acharya, V. 1998). Surgical interventions such as curettage, endometrial biopsy and hysteroscopy breach the barrier of cervix and thereby predispose ascending infections (Griger, A.M., & Foxman, B. 1996; & Horowitz, B. *et al.*, 1987). Besides, broad spectrum and frequent use of antibiotics, diabetes mellitus and long term steroid treatment may predispose to PID. Infertility, ectopic pregnancy and tubo-ovarian abscess are some of the common complications of PID (Banikarim, C. *et al.*, 2004; & Zeger, W., & Holt, K. 2003).

Acute PID is basically diagnosed by history and clinical examination. Young woman with multiple sexual contacts, not using any contraception, and residing in STIs prevalent area is a classical high risk patient for PID. Around 75% patients present with abnormal vaginal discharge and around 40% present with unexpected vaginal bleeding, often post sexual intercourse. Some common physical findings are tenderness of uterus, adnexa and cervical motion. In fact there is no single conclusive test for PID however, various imaging, laboratory analysis and procedures can be performed to have the definitive diagnosis (Tukeva, T. A. *et al.*, 1999; Burnett, A. M. *et al.*, 2012; & Schoeman, S. A. *et al.*, 2012).

In any suspected case of PID it is recommended to use broad spectrum antibiotics empirically. Chosen antibiotics need to be effective against *Chlamydia trachomatis*, *Neisseria gonorrhoeae*, Gram-negative facultative organisms, Anaerobes, and Streptococci. Treatment also depends on the clinical presentation, complications or sequelae and culture growth whenever possible. Both oral and parenteral formulations are available for acute symptoms and for microbiologic cure. Antibiotics is the time tested oral therapy and Antibiotics with Prebiotics are also available in recent days. After 72 hours of therapy all patients need to be reassessed to see clinical progress and compliance. Several studies have shown poor compliance with only Antibiotics therapy and around 20 - 25% patients of PID remain unrecorded. Centers for disease control and prevention (CDC) recommends Antibiotics or Antibiotics with Prebiotics as a first-line drug for the treatment of Chlamydia infection. Medical treatment with these agents is 95% effective (Peipert, J. F. *et al.*, 2001). In this comparative study treatment regimen considered is either only Antibiotics or Antibiotics with Prebiotics.

The hypothesis of this study is Antibiotics with Prebiotics better over only Antibiotics in the treatment of mild, uncomplicated acute PID and the aim is to test the hypothesis and to measure the outcome in terms of efficacy and compliance.

MATERIAL & METHODS

This study was conducted in Multispecialty Hospital, Pune Maharashtra.A descriptive cross-sectional study in 14 consecutive patients in tertiary care hospital with a working hypothesis of Antibiotics with Prebiotics is efficacious than only Antibiotics in the treatment of acute uncomplicated PID.

Women of reproductive age group (15-49 years) attending Genecology outpatient department having lower abdominal pain and abnormal per vaginal discharge with abdominal and/or pelvic organ tenderness on examination were included for the study.

Anyone having pregnancy, utero-vaginal prolapse, recent history of any antibiotic use or any known allergy to study medication, temperature 380C/100.40F or higher, rebound tenderness, no clinical improvement after 72 hours of treatment were excluded. Detailed general and specific history of the patient were taken before subjected to clinical examination.

Pregnancy test with a ‘test kit’ was done for all enrolled patients and they were asked to micturate before clinical examination. For gynecological examination, women were kept relaxed in dorsal position with the knees flexed. Perineum inspected for any rashes, excoriation, tears or any signs of inflammation. Per speculum (Cusco's) examination performed in a good source of light. Any abnormality in the vagina and cervix along with amount, color, consistency and odor of vaginal discharge were also noted. Per vaginal and bimanual examination was done for the assessment of uterine size, position, mobility and adnexal condition. Any suspected mass or tenderness felt in the fornices and pouch of Douglas were noted. Pain measured as per *numeric pain rating scale* who could quantify their pain in given numbers (0 to 10 for no pain, moderate pain to worst possible pain) and *verbal pain intensity scale* for those who could express but could not quantify in numbers (no pain, mild, moderate, severe, very severe and worst possible pain). Patients were randomly selected for treatment with either Antibiotics with Prebiotics or Antibiotics and individually instructed to take the medication Group 1 Tab. Doxy 100 mg BD, Tab. Metro 400 mg TDS; Group 2 Tab. Doxy 100 mg BD, Tab. Metro 400 mg TDS, Tab. Combinorm OD

Both treatment group patients were followed after 72 hours and then after 14 days. As an outcome measure they were asked about any reduction of vaginal discharge (amount, consistency and malodor), reduction of fornical tenderness, compliance and adverse drug reactions of the given medication.

RESULTS

Table 1. Agewise Distribution

Age	No of Patient	Percentage
19 - 25	05	17.85
26 - 30	10	35.71
31 - 35	10	35.71
36 – 40	03	10.71

Table 2. Paritywise Distribution

Parity	No of Patient	Percentage
Nullipara	06	21.42
Primi para	05	17.85
Multi para	17	60.71

Table 3. DM & Non DM Patients

	No of Patient	Percentage
DM	06	21.42
Non DM	22	78.57

Table 4. Associated Medical Conditions

Associated Medical Conditions	No of Patient	Percentage
DM	06	21.42
Anemia	02	7.1
UTI	05	17.85
Thyroid	07	25
Koch's History	01	3.57

Table 5. Medication

Medication	Symptoms		Structural	
	Relief	No Relief	Relief	No Relief
Only Antibiotics	04	10	04	10
Antibiotics with Combinorm	13	01	13	01

Out of 28 cases 14 (50%) were treated with Antibiotics and 14 (50%) with Antibiotics with Prebiotics. Comparative analysis on reduction of amount of vaginal discharge, consistency of vaginal discharge, malodor of vaginal discharge and fornical tenderness were significant, showing Antibiotics with Prebiotics to be more effective than only Antibiotics.

DISCUSSION

In this study reduction of amount, consistency and malodor of vaginal discharge along with reduction of fornical tenderness were significant for Antibiotics with Prebiotics. Comparing Antibiotics with Antibiotics with Prebiotics, this study showed better compliance and less adverse drug reactions for Antibiotics with Prebiotics over Antibiotics.

Our study has some limitations. Firstly, small sample size which may only be a tip of the iceberg makes it difficult to draw any conclusion. Secondly, women of reproductive age group only were taken into consideration hence, it is difficult to generalize the result. Thirdly, pain scales being subjective can have individual bias.

To conclude Antibiotics with Prebiotics has better compliance and efficiency than Antibiotics only for acute uncomplicated PID. Hence, it can be concluded that Antibiotics with Prebiotics is a better option in the treatment of mild, uncomplicated form of acute PID.

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