

Effect of Cervical Canal Cleaning on IUI Outcome

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Abstract

Background: Intrauterine insemination (IUI) is known as one of the method for infertility treatment. The effectiveness of IUI is not identical in all cases.

Objective: For facilitating of IUI and decrease of entrance of bacteria into uterus to increase pregnancy rate, cervical canal cleaning by swab is compared with IUI without cervical canal cleaning.

Material and Method: This study was conducted between 1st september 2008, 30th september 2009 in Mirza koochak Khan infertility center. After the initial investigations and omitting severe male and female infertility, 310 cases were selected. They divided two groups. IUI with swab as treated group (n=154) and IUI without swab as control group (n=156) variables were age, pregnancy rate and number of follicles.

Result: There were no statistical differences in age and type of infertility between two groups. Pregnancy rate in treated group was 14.3 % which is more than 10.3% in control group. This difference was significant between two groups.

Conclusion: There has been some research in which cervical canal cleaning before IUI increased pregnancy rate. In the recent study pregnancy rate was increased by cervical canal cleaning with swab before IUI. We observed meaningful statistical differences between two groups.

Keywords: Cervical canal aspiration; Cervical canal cleaning; IUI
Ovulation Induction; Unexplained infertility

Introduction

Intra-uterine insemination (IUI) is one of the most frequently used fertility treatments for couples with male subfertility. Its specifically procedure is well known for women with low fertility [1,2]. Ordinary for sub fertile men and unexplained infertility Intra uterine insemination is used as a known treatment [3]. With regard to commonly available, economical and less invasive of this method in versus more complex and expensive treatment, thus many studies have been done for more success of IUI. The effect of different variable on IUI out come has been well studied including: timing of IUI, single or double method, type of cutter, different induction protocol, insemination volume and different method of IUI [4-7]. As a reserve sores of sperm during normal intercourse cervical mucus (CM) is the important factor [8]. Existence of inappropriate cervical mucus and presence of anti sperm antibody causes some type of infertility [1]. While IUI can avoid cervical mucus and its undesirable properties but some of its effects still be present. There is not enough study to evaluate the role of cervical canal cleaning in outcome of pregnancy in IUI. In one study cervical mucus aspiration before embryo transfer improved pregnancy rate [9]. In some researches unwanted effects of cervical mucus in transferred embryo have been studied [9,10].

In the other hand unwanted entered mucus to endometrial cavity with catheter in IUI can causes some reverse effects on sperm motility in sperm-oocyte interaction. With regard to this experiment we decided evaluating cervical mucus removing with swab in out come of IUI. This study is planed for, if cervical mucus removal before IUI improve outcome of IUI and increase pregnancy rate?

Material and Method

This study was performed in Mirza koochak Khan infertility center of Tehran University between 2008/9/1 till 2009/9/30. In infertility evaluation, some cases of moderate male infertility according WHO criteria's and women who have no reason for infertility as unexplained

infertility entered in IUI cycle. In this open labeled study 310 couples underwent in the study. They were randomly divided two groups according to whether the cervical mucus has been cleaned or not. Intra uterine insemination with swab was done for 154 patients (treated group) and IUI without swab were done for 156 patients (control group). Primary assessment and complete physical examination for both groups have been done. Semen analysis and hormonal assessment (from second or third day and in 19 to 21 days of menstrual cycle) were done for all cases. Also to role out tubal factor of infertility histrosal pangography (HSG) were done for all cases. Semen analysis evaluation had been done with WHO criteria's (sperm count more than 20 millions per cc, morphology more than 30 % normal shape, motility more than 50% motion sperm and volume more than 2 cc) and then cases with sever male factors infertility included motility, count and morphology excluded from this study. However, women with regular menstrual cycle, normal physical examination and normal HSG and normal hormonal evaluation were included in this study. Transvaginal sonography at the beginning of menstrual cycle exactly before IUI was carried out. Induction of ovulation with the same protocol until to make ideal follicle size (18-20mm) continued for all cases, in this study clomiphene citrate 100 mg daily (Iran hormone) from third to seventh days of the cycles was used for all cases. Humane menopausal gonadotropine (HMG) Menogon 75 IU (Ferring Germany) was injected daily in the early follicular cycle. Human chorionic

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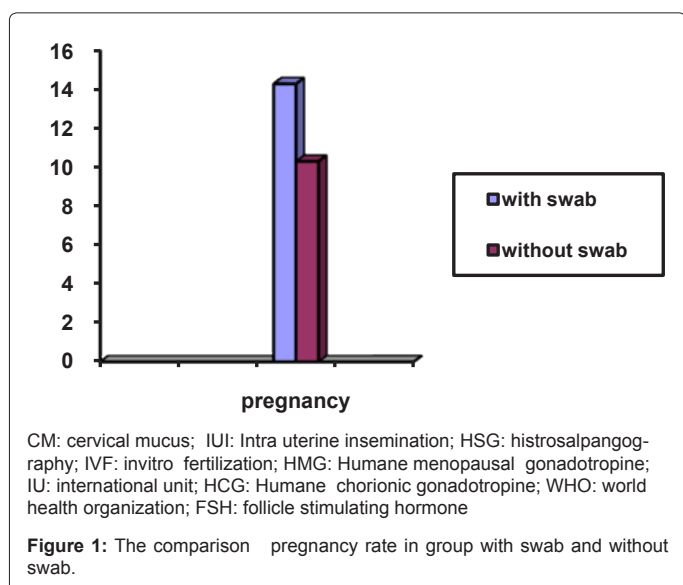
gonadotropine (HCG) (Choriomon, IBSA, Switzerland) administrated 5000 IU for all cases. After almost 36 hours of HCG administration, IUI in different methods were done for two groups. Semen sampling achieved with self-masturbation and prepared with density gradient method. In treated group cervical mucus was removed roundly and gently with 3-5 swabs which watered with Ringer lactate solution. Intra uterine insemination with ROKET catheter (India Company) has been done for all IUI cases. Statistical evaluation between two groups was done with chi-square test In SPSS version 18. Statistical differences was set at $p < 0.05$.

Result

A total of 310 women enrolled in IUI cycle in this study. The mean value of age in treated group was 28/3 years and in control group was 28/6 years. There were no statistical differences in mean of age and type of infertility between two groups Table 1. The mean of follicle number in treated group was 2.7 and in control group was 3.1. Although number of follicle in control group was more than treated group but rate of pregnancy was lower than treated group (10.3% in control group versus 14.3% in treated group) this difference was significant between two groups ($p = 0.02$) Figure 1. The mean of infertility duration in treated group was 4.8 years and in control group was 4.1 years. We observed statistical differences between two groups ($p = 0.03$). The mean of Menogon ampoules number which is used, in treated group was 3.9 and in control group was 3.8 and there were no statistical differences between the mean of Menogon number between two groups. The assessment of correlation between variables in two groups, number of follicle had negative correlation with duration of infertility and FSH level ($p = -0.03$). There were not statistical differences between endometrial thicknesses between two groups Table 2.

Variables	Mean	Std.Deviation	P/V
Age (female)			
IUI With swab	28.6	5.2	0.2
Without swab	28.3	4.8	
Infertility duration			
IUI With swab	4.8	2.9	0.03
IUI Without swab	4.1	2.7	

Table 1: The comparison age and duration of infertility between groups with chi. Square test.



Variables	Mean	Std.Deviation	P/V
Number of follicles			
IUI With swab	2.7	1.4	0.001
IUI Without swab	3.1	1.1	
Number of Menogon			
IUI With swab	3.9	1.4	0.62
IUI Without swab	3.8	1.2	

Table 2: The comparison pregnancy rate in group with swab and without swab.

Discussion

With regard to some benefits which will achieved with cervical mucus clinging including decreasing penetrance of bacteria into uterus cavity, less invasive, doing easily and economical advantage versus using catheter for mucus aspiration we suggested to use some swabs for cervical clinging in all patients with IUI cycle.

In Erhan Simsek study in 2008 cervical mucus aspiration before IUI improved outcome of IUI [11]. It should be mentioned the difference between our study with Simsek study was using swab for CM clinging instead of CM aspiration through the catheter. CM is so dense which its aspiration should be difficult through the catheter but using swab for removing CM with 3-5 watered swab with Ringer solution is more available. In Mansour RT and Aboulghar MA [9] study cervical mucus aspiration before embryo transfer during IVF accompanied with improving pregnancy rate. We don't know how cervical mucus plays reverse function in pregnancy rate noticeably. But there is some hypothesis about it. As an example cervical mucus can limits catheter removal of embryo into the uterus cavity in IVF cycle. In Berkkanoglu et al. [12] study these authors suggested entranced cervical mucus can reduce implantation rate of embryo. With regard to these points that catheter covered with cervical mucus can transport superficial bacteria's in to the uterus cavity during passage of catheter [13,14]. It is clear that in both procedures (IUI and IVF) endometrial cavity were infected by cervical mucus in the same mechanism. Finally entrance of bacteria to uterus cavity reduces clinical pregnancy with stimulating uterus contraction which cause reverse effects in outcome of IUI [8]. Existence of inappropriate agent in cervical mucus can be recognized by post quitil test but currently this test has no essential mission in the follow up of infertility [1]. In Eskandar et al. [10] study in patients with increasing this improper mucus in to the endometrial cavity, decreasing pregnancy rate was seen [15]. In Berjis et al. [16] study in 2008 cervical mucus cleaning before IUI improved pregnancy rate but it was not significant. One of the restricted factors of that study was number of cases. The number of cases on that study was 112 but in resent plans more cases underwent in the study. On that study normal saline which its osmolality was lesser than Ringer lactate solution was used for swab wetting. But in this study Ringer solution is used and we suppose it has less effect on spermatozoid osmolality [17]. In the recent study although in treated group the average of age was greater than control group but there isn't statistical differences in the mean value of age between two groups. However, this factor can do as a reverse role in fertility in treated group but the rate of pregnancy in the patients with cervical mucus cleaning in treated group was more than control group. Duration of infertility in treated group was 4.8 years versus control group which was 4.1 years. With regarded to this point that duration of infertility reversely affected outcome of IUI, we observed more clinical pregnancy in treated group that can be the improving effect of cervical mucus cleaning in pregnancy rate. In treated group the mean number of follicles was lower than control group (2.7 versus 3.1) in spite of this differences we observed more pregnancy rate in treated group. This

findings demonstrates that IUI with cervical mucus cleaning resulted an increased chance of clinical pregnancy. Consequently in our study we observed meaningful statistical differences in out come of IUI in our patients so CM clinging can be suggested to do for all patients in IUI cycle to increase chance of clinical pregnancy.

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