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IMPACT OF TEMPERATURE OF ATMOSPHERE ON THE CONSEQUENCE OF INTRA-UTERINE INSEMINATION

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Abstract:

Objective: *The aim of this research work is to find out the influence of atmospheric temperature on the consequence of IUI.*

Methodology: *This is a prospective research work. In this research work, total 274 & 294 cycles of IUI carried out from December 2017 to August 2018, in weather of cold & in hot season. The lowest and highest temperature range in the cold season were from 3.0°C to 17.0°C &13.0°C to 27.0°C and in hot season the lowest and highest temperature range were from 25.0°C to 32.0°C&43.0°C to 50.0°C correspondingly. We selected the infertile couples. The prevalence was infertility of male factor with anomalous semen's parameters, dysfunction in sex & nonstandard post coital test, ovulatory element and unsolved infertility. Serum Beta HCG was in use for the confirmation of the pregnancy.*

Results: *Out of total two hundred and seventy-four cycles in the weather of cold weather, twenty-four patients got pregnancy (8.750%) and out of two hundred and ninety-four cycles in hot weather, eighteen patients got pregnancy (6.120%). There was not much important association between the atmospheric temperature and the outcome of the intra-uterine insemination.*

Conclusion: *The results of this research work displays that outcome of intra-uterine insemination has no influence of temperature as well as hot or cold weather on its significance.*

Keywords: *Intra-Uterine Insemination, Temperature, Dysfunction, HCG, Serum, Infertility, Ovulatory, Correspondingly.*

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INTRODUCTION:

Infertility is very frequent problem which has influence over up to 15.0% couples. These couples have to face a lot in our culture which can also lead to the metal complications particularly in females because our religion Islam gives permission to have more than one marriages at single to males which also insecure the future of infertile female. In an effort for the improvement of conception rate, methods of artificial insemination in different types were in practice for almost two hundred years [1, 2]. Currently, IUI (Intra-uterine Insemination) alone or in combination with COH (Ovarian Hyper Stimulation) is in practice with the desire to get positive outcomes. There are many reasons behind the infertility of man as irregular semen, unexplained reasons and anomalous morphology of semen and sexual dysfunction.

The probability for the success with the intra-uterine insemination is depending upon various things as age of the female, ovulatory cycles, density of the sperm, motility of sperms and morphology of sperms. The final results of intra-uterine insemination with the sperm of husband are from 3.0% to 15.0% per cycle [2]. Definite and persistent patterns of the seasons in the rate of fertility were under observation in almost all the populations of human beings [3]. Birth rate on monthly basis and data of temperature from different states & countries are under consideration for the estimation of the impact of fluctuations in the atmospheric temperature on the rate of fertility. The temperature during the summer season extremely decreases conception in upper region of Punjab, Pakistan, describing a considerable part of the examined seasonal pattern of birth; extreme cold has no impacts or influence on conception [4]. In the same manner, there is no impact of the atmospheric temperature on the occurrence of fertility rate in accordance with various findings of the research works conducted in Europe. These outcomes have evidences that there are impacts of many other factors [3].

Some of the research works which examined the impact of many factors as latitude, rainy areas concluded that there is influence of some factors on the seasonally birth rate of human being as intensity of light and photo-period [5]. One important research work did not show any reduction in the rate of fertility among the workers of a pot room who were available with high exposure to high magnetic field and heat in comparison with the other workers who were the employees of an industry producing aluminum [6]. There are various findings of the impact of the temperature of atmosphere on the rate of conception. So, this research work carried out to determine the impact of the temperature of atmosphere on the rate of conception on the basis of the relationship between the temperature's variations and the outcome of intra-uterine insemination.

METHODOLOGY:

The duration of this study was from December 2017 to August 2018. The patients with sub-fertility with symptoms of intra-uterine insemination visiting the Gynecology Department of the Allied Hospital Faisalabad were the part of this research work. The nominated duration for the performance of the IUI was depending upon the coldest and hottest weather in the year in that particular region. In the coldest weather from December 2017 to February 2018, the lowest temperature was from 3.0°C to 17.0°C and the highest temperature was from 13°C to 27°C. In the duration of hot weather, from June to August of 2018. The lowest temperature was 25°C to 32°C & highest temperatures was 43°C to 50°C. Only the couples present with the infertility of the male factors because of anomalous semen's parameters, dysfunction during sex, infertility with the past history of three to six times of ovulatory induction, adverse coital test & infertility due to ovulatory factor with a past history of three to six times of ovulation induction.

All the patients had faced meticulous ovarian hyper stimulation, patients obtained Clomiphene citrate & minimum seventy-five IU HMG regardless of whether they were anovulatory or ovulatory. In complete cycles, the administration of the HCG (Five thousand IU IM) carried out when at least a follicle touched an average diameter of eighteen millimeters.

We processed the raw semen for intra-uterine insemination with the usage of swim up method and one single IUI carried out thirty-six hours later. We performed the serum B-HCG of the patients who missed this period. If the result of the serum B-HCG was available as positive, the outcome of the intra-uterine insemination was also positive. The expression of the collected carried out as average SEM (Standard Error of Mean). The matching of the patients carried out on the basis of the semen's parameters, contained the percentage of normal morphology of semen (Less than 5.0%, between 5.0% to 10.0% and greater than 10.0%) and the count of total motile (5 x106, 5-10x106 & greater than 10x106), age of female &ovulatory cycles. Ethical committee of the hospital gave the permission to conduct this research study. We took written consent from every participant to ensure his participation after explaining the purpose of the study to the

participants and ensuring them about their privacy. SPSS V10.1 was in use for the statistical analysis of the collected information. Chi square was in use for the comparison of the variables. P value of less than 0.050 considered as significant.

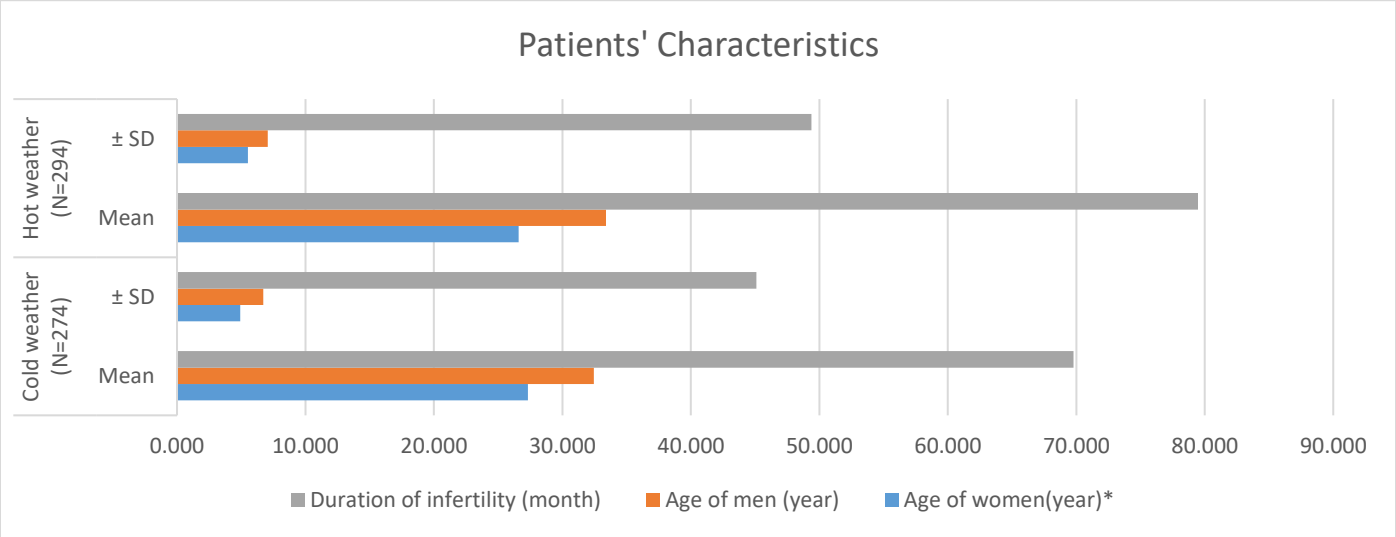
RESULTS:

There total three hundred and seventy-one couples who underwent five hundred and sixty-eight treatment cycles of intra-uterine insemination. The traits of demography of the studied couples are available in Table-1. The range of the females & males were from 16 to 24 years and from 19 to 73 years correspondingly, and the range of the duration of the range of infertility was from 7 to 264 months. The patients appeared with the primary &secondary infertility were 7.70% & 22.30% correspondingly. Total 274 IUI cycles carried out in the weather of cold and two hundred and ninety-four IUI cycles performed in the hot weather. Total twenty-four patients got pregnancy in the weather of cold, the overall rate of pregnancy was 24 per 274(8.750%) at every cycles and in hot weather, eighteen patients got pregnancy with a rate of 6.120%.

Table-I: Details of Patients in the Study

Details	Cold weather (N=274)			Hot weather (N=294)		
	Mean	± SD	Range	Mean	± SD	Range
Age of women(year)*	27.320	4.910	19 to 42	26.600	5.520	16 to 44
Age of men (year)	32.450	6.720	21 to 53	33.400	7.070	19 to 73
Duration of infertility (month)	69.780	45.090	9 to 228	79.480	49.390	7 to 264

*P = NS



DISCUSSION:

The temperature of the atmosphere does not have much impact on the outcome of the intra-uterine insemination. Some research works retroactively have assessed the impact of the atmospheric temperature on the outcome of the intra-uterine insemination. Proctor JG have published a retroactive research work and observed during his study that seasonality has the ability to change the parameters of the motility of the sperm as well as morphology of the sperms. But, these alterations are not of much importance to change the rate of occurrence of pregnancies [7].

Understanding of this research work have led to unprompted conception that there is not much significant impact of weather and Mur JM also confirmed the findings in his own research study but there was no other study present in its favor [4,6]. Research works displayed that overall rate of pregnancy per cycle of intra-uterine insemination was 7.30% that that is very much similar to the range of the occurrence as concluded by other research works from 3.0% to 15.0%.

CONCLUSION:

The outcome of this research work have concluded that there is no significant impact of the temperature of atmosphere on the outcome of IUI. There is still need of further research works to consolidate the findings of this research study.

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