

HIGHER PROTEIN LEVEL IN HUMAN VAGINAL SECRETIONS A CAUSE OF INFERTILITY

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SUMMARY

One hundred forty four (144) human females of age group 25-35 years were associated in this investigation. Out of them 72 females were normal/fertile and 72 females were suffering from primary infertility.

Vaginal secretions of both types of females were collected by a gynaecologist. Secretion of each female was processed separately for estimation of protein by the method of Lowry et al (1951).

The protein concentration was found to be significantly higher in females suffering from primary infertility in comparison to that of fertile females.

The increased protein concentration might have been responsible for disturbing the osmotic tension and consistency of vaginal fluid and thus inferring with the transport and viability of sperm inside the vaginal lumen by making an unfavourable environment. It may be a cause for infertility in females.

INTRODUCTION

The biochemical analysis of vaginal secretions of earlier investigations has showed the presence of proteins (Abdallah and Roig de Varagas - Linares, 1970), free amino acids (Singh and Bano 1990),

electrolytes (Wagner and Levin, 1980) and acids (Hunter and Nicholas 1959) throughout the menstrual cycle. Singh et al (1992) reported an increased protein concentration in uterine fluid of women as a indicator of infertility.

The proposed work was undertaken to know the levels of biochemicals which might be responsible for infertility.

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Accepted for Publication on 06.07.1994.*

MATERIALS AND METHODS

Samples from women of reproductive age of 25-35 years visiting the female ward of local Sadar Hospital and a private clinic were collected for this investigation. The women who had no gynaecological problem and had given birth to children were designated as fertile group and those who did not give birth to any child since 5-8 years after marriage were designated as primary infertile group. The samples were not

collected during menstrual flow period with an aim to prevent the fluid flow contamination by blood were collected from 5th day till 28th day of menstrual cycle. The menstrual cycle was sub divided into six phases - Early Proliferative (EP), Late Proliferative (LP), Ovulatory (O), Early Luteal (EL), Mid Luteal (ML) and Late Luteal (LL).

The vaginal secretion was collected by insertion of a pre-weighed vaginal tampon which was left inside for five

Table I

Showing concentration of protein in vaginal secretions of normal/fertile and infertile women

Phase of menstrual cycle	Protein concentration in mg/100 ml of vaginal secretion		
	Mean \pm S.E.		
	Normal/fertile women		Primary infertile women
Early proliferative (EP)	4.37 \pm 0.240 (12)	+++	30.622 \pm 0.611 (12)
Late proliferative (LP)	17.392 \pm 1.129 (12)	+++	41.042 \pm 3.510 (12)
Ovulatory (O)	11.453 \pm 1.141 (12)	+++	48.777 \pm 3.042 (12)
Early luteal (EL)	11.195 \pm 0.399 (12)	+++	25.597 \pm 3.065 (12)
Mid luteal (ML)	8.134 \pm 0.147 (12)	+++	29.596 \pm 0.564 (12)
Late luteal (LL)	4.989 \pm 0.918 (12)	+++	30.518 \pm 6.489 (12)

Number in parenthesis indicate the number of samples.

P Value - +++ H.S. (P < 0.001)

minutes. After removal, the tampon was immediately kept in a separate vial. Later on 2 ml. of glass distilled water was added into each vial and tampon was squeezed repeatedly ten times to ensure complete extraction of secretion from tampon. Then each vial was centrifuged for 10 minutes at 3000 r.p.m. to remove tissue debris, if any and the supernatant was used for protein estimation by method of Lowry et al (1951).

RESULTS

The findings are given in Table I.

In case of infertile women was a highly significant ($P < 0.001$) increase in protein concentration during different phases of menstrual cycle in comparison of fertile women. Comparatively the concentration was higher during all proliferative phases (EP, LP, O) than during all luteal phases (EL, ML, LL).

DISCUSSION

The higher protein concentration during different proliferative phases might be due to estrogen dominance. This finding can be ascertained with the earlier findings of Singh et al (1988), who reported maximum protein in rat's uterine fluid during estrus phase, when estrogen was its peak. Maathuis and Aitken (1978) also reported that the protein concentration was lower during luteal phases than during proliferative phases.

The over all increase in protein concentration during different phases of menstrual cycle in infertile women can

be correlated with earlier reports of Singh et al (1991), who reported higher protein concentration in the uterine fluid of infertile women throughout the menstrual cycle. This may be correlated with findings of Kar et al (1968), Moyer and Mischell (1971), who reported increased protein concentration in rat's uterine fluid due to IUCD application.

It is suggested that the increased protein might be disturbing the osmotic tension and consistency of the fluid and thus interfering with transport and viability of sperm in the vaginal lumen.

ACKNOWLEDGEMENTS

The authors are thankful to Dr. (Mrs.) Urmila Mishra, M.B.B.S., Civil Assistant Surgeon Sardar Hospital, Are (Bihar) for the collection of vaginal secretions.

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