Section 2

Executive Summary of the project

The presence of antisperm antibodies (ASA) can reduce fecundity in both males and females. The immuno-regulatory mechanisms of generation of ASA, their effects on gametes and gamete interactions have been studied extensively, however, some of its clinical implications on infertility is disputed so far. The literature in the field is quite scarce in Sri Lanka. With the availability of assisted reproductive technologies (ART), detection of the possible causes of infertility will enable to streamline the treatment. The present study was performed to investigate the incidence of ASA in infertile couples, to detect effects of these antibodies on fertilization processes and pregnancy outcome following ART procedures (intra uterine insemination-IUI / in vitro fertilization-IVF) and compare the results in such couples and couples without ASA.

Two-hundred and thirty infertile couples were studied from January 2006 to January 2009. Relevant clinical data were obtained by self administered questionnaire and clinical examination. Presence of ASA was elicited using mixed antiglobulin reaction latex bead test (SpermMAR, Fertipro NV, Belgium). In males spermatozoa, seminal plasma and serum samples were analyzed for ASA and in females cervical mucus, serum and follicular fluid were taken for analysis. The test was considered positive if 30% or more of the motile sperm were attached to the latex particles. The isotype and location of ASA, detected by the type (i.e. IgA, IgG) and the site of binding of latex beads to ASA on the spermatozoa (i.e. head, midpiece, tail of the sperm) were observed. In couples underwent IVF, fertilization rate and day 03 cleavage rate of embryos were assessed. The pregnancy/miscarriage rates following each ART procedure were noted.

The incidence of ASA was 20.87% among the infertile couples with males having a higher incidence (12.61%) than the females (8.26%). There was no significant correlation observed with presence of ASA and age, duration of marriage, duration of infertility, type of infertility and occupation of both males and females. A statistically significant association (P-value=0.036) between presence of ASA and a history of genital surgery was observed in males. The incidence of ASA was proportionately higher among women those who had previous IUIs (11.7%) compared to the women who did not have IUIs (5.88%). Also a significant association of ASA was observed in females with pelvic inflammatory disease.

The total fertilization rate was significantly higher (P-value=0.001) in ASA positives than that of the ASA negatives. The total cleavage rate was significantly lower (P-value=0.037) in ASA positives than that of ASA negatives. There was no significant difference observed in fertilization rates and cleavage rates among the Ig isotypes. However, IgA isotype of ASA was observed as having the highest fertilization rate and the lowest cleavage rate. Head or midpiece+tail bound ASA on spermatozoa were observed to have more negative effects on cleavage rate. In ASA positives there was a marked increment in pregnancy rate when they underwent IVF (19.23%) than IUI (13.64%). The effects of isotype and location of ASA on clinical pregnancy rate and miscarriage rate could not be evaluated statistically due to small number of subjects in some categories. However, it was noted that best samples for screening for ASA for male would be IgA ASA on spermatozoa and for female IgA and IgG ASA in serum.