I S—9

The implication of the sperm head agglutination induced by a V3 peptide (fragment 307-330, gp120) solution

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Background: The human semen has been shown as the main vehicle for the transmission of human immunodeficiency virus (HIV); therefore, the interaction of HIV and the sperm is worthwhile for further approach.. Objectives: To investigate the possible role of sperm in HIV transmission as reflected by their interaction with V3 domain of HIV envelope protein gp120. Methods: A motile human sperm head fixation method (Ou et al., 1993) was used as an in-vitro model for the observation of the interaction of motile sperm with a V3 peptide (fragment 307-330, HIV-$1_{IIIB}$ envelope protein gp120) or C2 peptide (fragment 254-274, HIV-$1_{IIIB}$ envelope protein gp120) in PBS solution. The influence of dextran sulfate was tested to understand whether its high negative charge would affect the interaction of sperm with the V3 or C2 peptide. Results: The V3 peptide caused a significant sperm head agglutination while the C2 peptide did not. In this study, the dextran sulfate could induce no more sperm head agglutination than the PBS solution, but the sperm head agglutination induced by the V3 peptide was enhanced by the dextran sulfate in a rate of 1.3 to 5.3 times. Conclusions: The V3 domain has a unique positive charge which may overcome the electrostatic resistance to bring two negatively charged membrance together and form the cell syncytium in HIV infection disease. The result of this study is compatible with this assumption. In contrast, the C2 peptide with only a positively charged basic amino acid could not induce sperm head agglutination. Dextran sulfate is a virion-cell attachment inhibitor but enhanced sperm head agglutination induced by V3 peptide in this study.

I S—10

**Comparison of Strict Morphology, Acrosome Reaction to Ionophore Challenge (ARIC) and Sperm Penetration Assay(SPA) as a Fertilizing Capacity Predictor in IVF-ET**

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Purpose : To compare the predictablity of fertilization among strict morphology, ARIC and SPA in those patients undergoing IVF-ET

Materials and Method : We evaluated the semen of the patient's husband before performing IVF-ET. After performing IVF-ET, poor fertilization group was defined if the fertilization rates(FRs) are less than 30%. We regarded as true positive if the test value showed normal with the FRs of more than 30%.

Results : The sensitivity and specificity of SPA with cutoff-value as 3.0 for the prediction of fertilization were 76.2% and 95.0% each. The sensitivity and specificity of ARIC value with cutoff-value as 8.5 for the prediction of fertilization were 84.1% and 90.0% each. The sensitivity and specificity of strict morphology for the prediction of fertilization were 76.2% and 75.0% each.

Conclusion : Strict morphology, ARIC test and SPA could be used as useful tools for the prediction of fertilizability in those patients undergoing IVF-ET