

Designing an ELISA method using sperm surface antigens for detection of antisperm antibody in comparison with SpermMar test

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Abstract

Introduction: The role of antisperm antibodies with a prevalence of 6-26% is well known in immunological infertility. Thus, there is clinical importance to determine ASA levels in both male and female. Nowadays, one of the most important discussed controversies in the field of immunological infertility is establishing a standard method to determine ASA. It seems that ELISA method will be more sensitive, specific and more diagnostic in determination of ASA if sperm surface antigens could be used as coated antigens, with least contamination to sperm intracellular antigens and nonspermic antigens. So, the aim of this study is designing an ELISA method by using the best method of sperm antigens extraction with at least contamination.

Materials and Methods: In this study we designed an ELISA method with three different extraction methods of sperm antigens including sonication method, using SDS detergent, and application of LIS detergent, then we compared ELISA method based on the three extraction methods as well as two similar commercial ELISA kit (IBL Co, and Bioserv Co) with SpermMar test.

Results: Comparing designed method with commercial kit indicated that among 28 sera which had 16 positive sera and 12 negative sera by SpermMar, 14 sera were true positive by LIS method and only 2 cases were false negative without any false positive results, whereas there were 5 true positive results and 11 cases false negative by the sonication method. The SDS method also had 13 true positive results with 3 false negative and 4 false positive results. In addition, two commercial kit had in turn 7 and 4 cases true positive and both of them had 1 case false positive and in turn 9 and 12 cases with false negative result. ELISA method designed by LIS detergent has adequate sensitivity (87.5%) with higher specificity (100%) and efficacy (92.8 %) than other extraction methods. There is a significant correlation between this designed method and SpermMar test ($r=0.572$).

Conclusion: The results of this study indicated that ELISA method by LIS antigens has at least contamination with nonspermic antigens and it is better than other extraction methods and commercial ELISA kits for detection of antisperm antibody.

Key Words: Infertility, Sperm, Antisperm antibody, ELISA, SpermMar, LIS, and Sperm surface antigens.

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