A NEW SERUM MARKER FOR ENDOMETRIOSIS

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Purpose: There is no efficient biomarker for diagnosis, unless the invasive laparoscopy or laparotomy operation is applied to confirm the occurrence of endometriosis. We previously have found alpha 1 antitrypsin (A1AT) was increased in serum of women with endometriosis by proteomic analysis, suggesting that A1AT can be a potential serum marker for diagnosis of endometriosis. A1AT is glycosylated and expressed as variant isoforms in human serum. In this study, we investigated the expressions of different A1AT isoforms in serum of patients with endometriosis.

Materials and methods: The serum samples from patients with and without endometriosis were collected in Taipei Medical University Hospital. TCA/acetone precipitation was carried out to remove albumin followed by protein G absorption to remove immunoglobulin. Western blotting analysis was employed to identify the different isoforms of A1AT. Immunoprecipitation with anti-A1AT antibody followed by PNGase F digestion was carried out for glycomic and proteomic analysis of A1AT.

Results: Western blotting data showed that 55, 65, 70 and 90 kDa bends were detected by the anti-A1AT antibody. The 55 and 70 kDa A1AT were significantly present in patients with endometriosis compared to that in women without endometriosis. The 55 and 90 kDa forms were N-glycosylated. Additionally, sialyl Lewis X glyco-epitope was expressed significantly in serum of patients with endometriosis.

Conclusion: The 55 and 70 kDa A1AT isoforms and the sLeX modification of A1AT could be the potential biomarkers for diagnosis of endometriosis.