

Proteomic investigation of the severe preeclampsia treatment by low molecular weight heparin

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Purpose: The primary goal of this study is to investigate the mechanism of severe Preeclampsia (PE) treatment by low molecular weight heparin (LMWH).

Methods: Using two dimensional difference in-gel electrophoresis (2D-DIGE) combined with matrix assisted laser desorption ionization-time-of-flight/time-of-flight mass spectrometry (MALDI-TOF/TOF) approach to identify the proteins that expressed differently in the serum samples of five patients before and after subcutaneous injection of LMWH (0.4 ml/person).

Results: Seven protein spots are identified in 2D-DIGE that show significant change in expression level after LMWH treatment. Further analysis of seven protein spots with MALDI-TOF/TOF identified six different proteins. To confirm the proteomic data, two of the six proteins, alpha-1-acid glycoprotein (AGP) and serotransferrin are subjected to immunoblotting. Both proteins are obviously down regulated after LMWH treatment.

Conclusions and clinical relevance: Preeclampsia is a pregnancy-specific disease that clinically manifests as new-onset hypertension and proteinuria after 20 weeks of gestation. LMWH is an effective treatment of severe preeclampsia. Our proteomics based investigation may provide a new angle to understand the mechanism of severe preeclampsia treatment with LMWH.

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