SERPINA4/Kallistatin: A proteomic biomarker for cirrhosis of liver

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Diagnosing the degree of multifactorial liver cirrhosis is crucial for successful management; early diagnosis may reverse cirrhotic liver to normal. Highly invasive liver biopsy is gold standard diagnostic tool. Existing biomarkers for cirrhosis in clinical practice have narrow applicability due to lack of specificity and sensitivity. Proteins expressed from liver entering into circulation reflect degree of liver dysfunction. Technological advancement in proteomic approach may generate numerous biomarker candidates. Prioritization of candidate is prerequisite for further validation in biomarker pipeline. Hence, present study aims to correlate newly discovered biomarker candidate with serum levels of direct and indirect biomarkers of hepatocellular damage. Blood samples were collected from cirrhotic liver and healthy subjects (n=96 each) from Department of Medicine, RL Jalappa Hospital, Kolar, Karnataka, India. Serum was used to discover protein biomarker candidates, analytical validation of newly developed methodology and clinical validation of newly discovered biomarker candidate. With the help of technological advancement in proteomic approach, we identified 42 protein biomarker candidates; 28 by In-gel trypsin digestion and 14 by comparative protein expression analysis. Kallistatin (SERPINA4), a multifunctional protein expressed from liver was considered for further analytical and clinical validation. In the development of quantitative ELISA, SERPINs do not have any cross reactivity with kallistatin. There was significant reduction in kallistatin levels in cirrhotic liver compared to healthy subjects. Reduction in kallistatin levels along with elevated activity of liver enzymes and prolonged PT INR lead to poor prognosis of the disease. Thus, serum kallistatin levels may give potential insights for diagnosis/prognosis of cirrhosis.

Biography

Sumanth NK has completed his PhD from Sri Devaraj Urs Academy of Higher Education and Research, Karnataka, India. He has published few review articles and research articles in reputed journals. He applied for patent for his invention, Quantitative ELISA for SERPINA4/Kallistatin Government of India. He has 12 years of teaching experience in medical and dental colleges and in clinical diagnostic laboratory with hands on experience on automation with internal and external quality control program. He is having research experience in medical and clinical biochemistry with hands on experience on proteomic techniques.

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