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Nampt and Autoantibodies Association: A New Frontier for Autoimmune Diagnostic?

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ABSTRACT

Background and Aims: This study investigated the potential involvement of extracellular enzyme/cytokine NAMPT (eNAMPT) as an immunomodulatory soluble factor linked to antinuclear antibodies (ANA), the main markers tested for the diagnosis of systemic autoimmune diseases. The diagnosis of autoimmune diseases is far from simple and it usually remains a challenge, therefore the aim of this study was to assess the association between circulating eNAMPT levels and ANA positivity, as well as to examine correlations with selected immunohematological parameters within the study cohort.

Methods: A total of 140 serum samples were collected at the Clinical Laboratory of Azienda Ospedaliera Universitaria (AOU) of Alessandria, from individuals with suspected autoimmune disorders: 70 ANA-positive samples (titer ≥ 1:160) and 70 ANA-negative samples (titer < 1:80). ANA detection was performed by indirect immunofluorescence (IIF) on Hep-2 cells using four serial dilutions (1:80-1:640). eNAMPT levels were measured at the Preclinical Research Laboratory, DISIT-UPO, using a commercial sandwich ELISA. A control cohort of 30 healthy donors was analyzed with the same protocols.

Results: Serum eNAMPT concentrations were markedly elevated and nearly identical in both ANA-positive and ANA-negative patient groups (mean level ~ 14,5ng/mL in each cohort). In stark contrast, healthy controls displayed significantly lower eNAMPT levels (mean ~ 2 ng/mL), in favor of the starting hypothesis. The difference between the pathological groups and the control group was statistically significant ($p < 0,0001$, one-way ANOVA).

Conclusion: Preliminary findings show comparable elevations of eNAMPT in both ANA-positive and ANA-negative individuals, with levels far exceeding those of healthy controls. This suggests that ANA positivity alone does not delineate distinct pathogenic subgroups. The consistent increase of eNAMPT, a known inflammatory mediator in autoimmunity (even though not universally acknowledged), supports its potential role as a complementary biomarker. Ongoing analysis aim to asses correlations between systemic inflammation markers and autoantibody profiles to identify molecular signatures for early autoimmune disease detection.

Keywords: ANA, NAMPT, eNAMPT, Autoimmune Disease

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