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Poster Session III
Tuberculosis: non-molecular diagnosis and pathogenesis

CAN SERUM SIDEROCALIN LEVELS PREDICT ACTIVE TUBERCULOSIS IN HIV INFECTED AND NON HIV INFECTED INDIVIDUALS?

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Objectives:

Neutrophils in individuals with active tuberculosis (TB), secrete a protein, siderocalin or Neutrophil Gelatinase Associated Lipocalin(NGAL), as part of a defense mechanism, which limits the availability of iron which is essential for the growth of mycobacteria. Siderocalin binds strongly with the siderophore-iron complex, making it unavailable to the bacteria, thereby inhibiting its growth. The objective of this study was to evaluate the levels of siderocalin in patients with active tuberculosis, HIV infection with and without active tuberculosis, and healthy controls.

Methodology:

Serum samples from patients with active TB, HIV infection with and without active TB and healthy controls were tested using a sandwich ELISA (Bioporto diagnostics). The amount of siderocalin in the sample was quantified according to the manufacturer's instructions.

Results

A total of 157 subjects with a mean age of 40 years were included in the study which constituted of 38 active TB patients, 43 patients with HIV infection, 37 with HIV and active TB and 39 healthy controls. The mean siderocalin concentration in healthy controls was 457.6 ± 185.5 pg/ml while in HIV infected patients it was significantly lower with a mean level of 307 pg/ml ($p<0.01$). The concentration of siderocalin was found to be significantly higher in patients with active TB with a mean of 846.2 pg/ml ($p<0.01$) and HIV and TB co-infection 572.5 pg/ml ($p=0.02$) (Figure 1).

Conclusion

The trend in siderocalin levels suggests that there is an up-regulation of siderocalin in individuals with active TB, with and without HIV infection, which can be used as a potential surrogate maker. In HIV infection there is inhibition of siderocalin and hence the level of siderocalin in patients with TB and HIV co-infection is lower than those with active TB without HIV. Further studies in this field could open the possibility for siderocalin to be used as a surrogate marker of active TB and possible use as adjunctive therapy to standard chemotherapy in TB.