Abstract: P1612

Title: CALPROTECTIN LEVELS ARE ELEVATED IN CONGENITAL TTP AND IMMUNE TTP AT ADAMTS13 RELAPSE

Abstract Type: Poster Presentation

Session Title: Platelet disorders

Background:

Calprotectin (also known as S100A8/A9) is a proinflammatory protein that is secreted by neutrophils. A previous study by Sui et al (2020) demonstrated calprotectin was elevated during acute immune TTP episodes, with higher levels associated with mortality; and postulated that it may also be involved in the pathogenesis of TTP by playing a role in thrombus formation.

Aims:

We sought to examine whether calprotectin levels were elevated in TTP patients in different clinical scenarios to determine if it could be used to predict relapse or was simply a marker of inflammation during acute episodes.

Methods:

A retrospective study was carried out in patients consented to the UK TTP registry where frozen, citrated plasma was thawed and levels were measured using a human S100A8/A9 DuoSet ELISA kit (R&D Systems, Minneapolis, MN), according to the manufacturer's instructions.

In total, 95 TTP patient episodes were tested, of which 40 were patients that had an ADAMTS13 relapse, 30 were congenital patients and 5 were immune TTPs in complete remission. The remaining episodes were acute: 12 immune TTP and 8 congenital TTP. The mean age of patients at the time of an episode was 42 years (range 0 – 83 years). 40 normal control citrated plasma samples were also tested.

Results:

In clinical remission, the median calprotectin level for ADAMTS13 relapse episodes was 0.76 µg/ml (range 0.02 – 2.31), which was similar to congenital patients at 0.72 µg/ml (0.03 – 14.45) but significantly higher than normal controls: 0.33 µg/ml (0.06 – 0.91). Interestingly, although only 5 TTP patients in complete remission were tested, their calprotectin level was also raised compared to normal controls at 0.6 µg/ml (0.33 – 1.22). Levels were considerably higher in acute episodes with 15.3 µg/ml (4.9 – 242) in congenital patients and 64.3 µg/ml (0.99-332) in immune TTP patients.

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Summary/Conclusion:

Calprotectin is markedly elevated during both acute immune and congenital TTP episodes. During remission or prior to elective therapy, levels are much lower although not as low as normal controls. Our findings suggest that even in clinical remission, for both immune and congenital TTP patients alike, there seems to be some ongoing inflammatory activity. This may have long-term implications for patients and requires further study.



Figure: Calprotectin levels in congenital TTP patients, ADAMTS13 relapses in clinical remission and normal controls. **** refers to a p-value <0.0001.

Keywords: Thrombotic thrombocytopenic purpura (TTP), Thrombotic microangiopathy