

High levels of NK cells in patients with anti-phospholipid syndrome and recurrent spontaneous abortion: a potential new marker for fetal loss

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Anti-phospholipid syndrome (APS) is an autoimmune disease characterized by the presence of one or more laboratory findings of anti-phospholipid antibodies (aPL) and at least one clinical manifestation: deep venous and/or arterial thrombosis and/or recurrent spontaneous abortion (RSA), with or without thrombocytopenia.

RSA has numerous causes and is defined by three or more consecutive spontaneous abortions. It may occur during any stage of pregnancy.

Several pathogenic mechanisms responsible for fetal loss in patients with APS have been described, but the exact role of the aPL in the genesis of RSA is still not completely understood. Natural killer (NK) cells may play a relevant role.

During normal pregnancy, NK cells activity tend to increase in the first trimester and then tend to decrease. Recent studies suggest that the increase of NK cells may have a prognostic indicator for sterility and fertility.

No data regarding NK cell levels in APS patients have been reported in the literature.

In this study patients with APS with and without RSA and RSA without aPL were studied for NK cell levels in blood, to evaluate its role in abortive events.

Two hundred and eighteen RSA patients were included in this study. Twenty-eight APS patients without RSA and twenty-five APS-RSA patients were also evaluated. Forty-two healthy women of reproductive age served as controls. No significant differences were observed among the age distribution of each group.

A positive result for high levels of NK cells was defined as a percentage >15% lymphocytes.

The results showed that NK cell mean percentages were significantly higher in APS-RSA than in all the other conditions studied, except idiopathic RSA. It was demonstrated that the patients with APS, RSA and NK cell levels >15% tend to abort earlier, generally within the first 10 gestational weeks compared to the other APS-RSA patients with NK levels <15%.

The results of this study suggest that natural immunity, NK cells, play a role in the pathogenesis of abortive events in APS – RSA patients. Even if altered levels or activity of NK cells were found in the patients with RSA it is uncertain whether these changes are the result of multiple abortions or whether they work directly as a pathogenic mechanism in RSA. □

In conclusion, NK cell levels in peripheral blood were significantly higher in APS-RSA patients. Therefore, in all APS patients, dosage of NK cell might prove useful for the evaluation of the possible pregnancy outcome.

Comment on the paper:

Perricone et al – High levels of NK cells in the peripheral blood of patients affected with anti-phospholipid syndrome and recurrent spontaneous abortion: a potential new hypothesis. *Rheumatology*.2007; 46:1574-1578