RABBIT ATG ADMINISTRATION TO A PATIENT WITH EQUINE ATG-ASSOCIATED SERUM SICKNESS AND A POSITIVE EQUINE ATG SKIN TEST.

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Background:

Serum Sickness (SS) is classically described as a syndrome of fever, skin rash, lymphadenopathy, and arthralgias that occurs after exposure to equine serum preparations like Antithymocyte Globulin (ATG) in patients with Aplastic Anemia (AA). AA can recur after treatment with equine ATG, requiring multiple doses. However repeat treatment is contraindicated in patients that have developed SS following previous administration. We report a patient with successful rabbit ATG administration after she developed SS with equine ATG and had a positive equine ATG skin test.

Methods:

Our patient is a 43 year old woman who presented with AA and was treated with equine ATG. She developed a rash six days later, and was admitted to the hospital with fever, joint pain, and renal failure. We performed an intradermal skin test using 0.1 ml of 1:1000 equine ATG. After twenty minutes of observation, our patient developed 25 mm of erythema. This was considered a positive intradermal test to equine ATG, but she required re-treatment with ATG prior to bone marrow transplantation. Our test revealed evidence of type I hypersensitivity to equine ATG, placing her at risk for anaphylaxis. Based on this, we acquired rabbit ATG for skin prick testing and intradermal testing. Skin prick testing for rabbit ATG was performed with a concentration of 0.25mg/ml. Intradermal testing was performed by injecting 0.5 ml of 0.025mg/ml of rabbit ATG.

Results:

The patient had no reaction to skin prick or intradermal testing with rabbit ATG. Saline controls were negative and histamine controls were positive for both skin prick and intradermal tests. Our patient received an incremental challenge of rabbit ATG that began with 1/100th of the full dose. The patient was premedicated with oral prednisone, diphenhydramine, and acetaminophen. After observing her for 30 minutes, she received 1/10th the full dose, and then received the full therapeutic dose (3.5 mg/kg) of rabbit ATG after another 30 minute observation period. She subsequently received a bone marrow transplant.

Discussion:

SS is a type III hypersensitivity reaction and can occur in up to 86% of patients with AA who are receiving equine ATG. As a positive skin prick test to equine ATG may significantly affect the treatment of a patient with AA, awareness of therapeutic options becomes essential. Desensitization protocols exist for equine ATG and have been reported in the treatment of AA in children. Desensitizing adults with positive skin prick tests to equine ATG appears to be limited by the severity of hypersensitivity reactions,
such as AA or anaphylaxis\textsuperscript{9}.

Conclusion:

SS with equine ATG is common in patients treated for AA, and in addition, patients with repeated exposure to equine ATG are at risk for developing immediate hypersensitivity to equine ATG. There are few reports of successful rabbit ATG use after equine ATG has caused SS or a positive equine-ATG skin test in AA patients.