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# Rituximab Infusion Reaction Prophylaxis Using Histamine Receptor Blockade, Prednisone and Colchicine

R Lin

**Citation**

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**Abstract**

## INTRODUCTION

Rituximab administration is frequently associated with infusion reactions([1]). These reactions tend to lessen with subsequent readministration and with the use of antihistamines, corticosteroids, and anti-pyretics. In this case report, the successful use of a prophylactic regimen including H1 and H2 receptor blockade plus prednisone and colchicine is described.

## CASE REPORT

An 80 year old female with large cell lymphoma presented with a history of 2 infusion reactions to rituximab 2 years prior. The initial reaction occurred within minutes, after the intravenous administration of a few milliliters of her first infusion. The reaction consisted of diffuse erythema, shortness of breath, and hypotension. The patient described having uncontrollable shaking for several hours after the infusion. The second infusion was attempted a few days later. Prophylactic treatment was administered with acetominophen, diphenhydramine, and parenteral dexamethasone given prior to the second retuxamab infusion. A 1:10 dilution of rituxamab was utilized. After infusion of a few milliliters, she developed an identical reaction to that observed with the first infusion.

The patient subsequently was seen at a different medical center and in the Spring of 2003 developed fever, bulky high cervical lymphadenopathy, a rising lactate dehydrogenase level, and progressive splenomegaly. Neck node biopsy showed transformation to a high grade lymphoma. The patient received one cycle of chemotherapy with cyclophosphomide, mitoxantrone, vincristine and prednisone (CNOP) with resolution of fevers and improvement in cervical lymphadenopathy and splenomegaly. Her oncologist felt rituximab therapy should be re-attempted along with the CNOP chemotherapy during cycle 2. A prophylactic regimen involving famotidine, diphenhyradramine, colchicine and prednisone was formulated. The patient was instructed to take diphenhydramine 50 mg, famotidine 20 mg, colchicine 0.6 mg, and prednisone 40 mg on the evening prior to hospitalization and to repeat the dose on the morning of hospitalization. The purpose of the hospitalization was to monitor the patient for an infusion reaction to a test dose of rituximab. The patient received the prophylactic medication regimen on the morning of the rituximab infusion. A 50 microgram test dose was administered to the patient over 20 minutes. No reaction occurred. The patient then was given a full dose shortly thereafter that same day. No adverse reactions occurred then or with subsequent doses.

## DISCUSSION

In the initial clinical trials of rituximab treatment, mild to moderate infusion reactions consisting of fever and chills/rigors occurred in the majority of patients during the first rituximab infusion([1]). Some fatal infusion reactions have occurred and consist of a complex with hypoxia, pulmonary infiltrates, acute respiratory distress syndrome, myocardial infarction, ventricular fibrillation or cardiogenic shock([1]). Other reactions have been described, including vasculitis and serum sickness reactions([2],[3],[4]). The mechanisms of these infusion reactions is unclear. The features of these reactions are not consistent with anaphylaxis alone, and release of inflammatory cytokines would seem to be a possible mechanism in explaining the multitude of systemic signs seen with these infusion reactions. Corticosteroids are often used for prophylactic treatment in clinical situations where allergic reactions are likely. Their effect, however is felt to take several hours. It is not certain, whether prednisone therapy was an effective prophylactic component in the patient described here. The

use of combined H1 and H2 blockade in preventing and treating allergic reactions secondary to medication administration has been reported([5,6]). Colchicine has anti-inflammatory effects that are well known in treating acute gout and preventing gout exacerbations([7]) but its use has also been described in other intermittent inflammatory conditions including familial Mediterranean fever([8]) and Schnitzler syndrome([9]). Thus the use of colchicines as prophylaxis in potentially inflammatory processes has some rationale. In the case described, it is not known if the patient was more tolerant of rituximab treatment because it was the third administration over a 2 year period or if the prophylactic treatment was effective. It is suggested that future rituximab infusion reactions be managed using prophylactic treatment including histamine blockade, colchicine and corticosteroids when rituximab is readminstered. It is hoped that this may be associated with a lower incidence of repeat infusion reactions.

## References

1. Genentech: Products - Product Information - Rituxan Full Prescribing Information:http://www.gene.com/gene/products/information/oncology/rituxan/insert.jsp
2. Dereure O, Navarro R, Rossi JF, Guilhou JJ. Rituximab-induced vasculitis. Dermatology. 2001;203(1):83-4.
3. D'Arcy CA, Mannik M. Serum sickness secondary to treatment with the murine-human chimeric antibody IDEC-C2B8 (rituximab).Arthritis Rheum. 2001;44(7):1717-8.
4. Albanell J, Baselga J. Systemic therapy emergencies. Semin Oncol. 2000;27(3):347-61.
5. Lorenz W, Doenicke A, Schoning B, Mamorski J, Weber D, Hinterlang E, Schwarz B, Neugebauer E. H1 + H2-receptor antagonists for premedication in anaesthesia and surgery: a critical view based on randomized clinical trials with Haemaccel and various antiallergic drugs. Agents Actions 1980;10(1 Pt 2):114-24
6. Lin RY, Curry A, Pesola GR, Knight RJ, Lee HS, Bakalchuk L, Tennenbaum C, Westfal RE. Improved outcomes in patients with acute allergic syndromes who are treated with combined H1 and H2 antagonists. Annals of Emergency Medicine 2000;36(5):462-8
7. Rott KT, Agudelo CA. Gout. JAMA. 2003;289(21):2857-60.
8. Bakkaloglu A. Familial Mediterranean fever. Pediatr Nephrol. 2003;18(9):853-9. Epub 2003 Jun 27.
9. Germain P, Fach J, Bui N, Traissac T, Delbrel X, Le Bras M, Longy-Boursier M. [Schnitzler syndrome: a rare cause of systemic urticaria] Rev Med Interne. 2000 Mar;21(3):285-9.

## Author Information

**Robert Y. Lin, M.D.**
Department of Medicine, St Vincents Hospital, Manhattan-SVCMC/New York Medical College