

# Application and Nursing of Non - Hodgkin 's Lymphoma in the Treatment of CD20+ by Rituximab Rapid Infusion Method

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**Abstract:** The use of Rituxan (rituximab) rapid infusion method (90 min infusion method) in the treatment of CD20<sup>+</sup> Non-Hodgkin's Lymphoma (NHL) in the treatment of safety and infusion of adverse care. In the case of 139 patients with CD20<sup>+</sup> Non-Hodgkin's Lymphoma who were treated with rituximab for the first time, patients who did not experience grade III ~ IV infusion were treated with rapid infusion in their follow-up rituximab and put forward nursing measures.

**Keywords:** rituximab; rapid infusion; Non-Hodgkin's Lymphoma; infusion reaction; nursing

## Introduction

Rituxan is mainly used in the first-line treatment of CD20-positive malignant lymphoma and chronic lymphocytic leukemia<sup>1-2</sup>, which is used to improve the sensitivity of lymphocytes to some cytotoxic drugs, which has been used for more than ten years in China. In the beginning of the second course of treatment, the use of rituximab rapid infusion method, a total of 138 patients received a total of 683 courses of treatment, patients with good tolerance, lighten adverse reactions, shorten the patient's bedtime and hospital stay, simplifying the infusion process, reduce the workload of nurses. The current practice and experience reported as follows.

## 1. Materials and methods

### 1.1 Clinical data

From September 2015 to December 2016 in our newly diagnosed CD20<sup>+</sup> Non-Hodgkin's Lymphoma in 139 patients, including 86 males and 53 females; aged 18-76 years, mean (49.36 ± 8.731); there were 82 cases of diffuse large B-cell lymphoma (DLBCL), 32 cases of follicular lymphoma (FCL), 14 cases of mantle cell lymphoma (MCL), 3 cases of

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marginal zone B-cell lymphoma (MZL) , 3 cases of small lymphocyte lymphoma, 4 cases of Burkitt lymphoma, by immunohistochemistry and / or flow cytometry confirmed tumor cell surface CD20 antigen expression positive. Before treatment, auxiliary examination is taken, which includes ECG, liver and kidney function, blood and biochemical routine are within the normal range, hepatitis B virus carriers in advance of antiviral therapy. From the 139 patients, 93 patients were treated with rituximab-based CHOP, 31 in the rituximab + EPOCH regimen, 11 in the rituximab + CODOX-M / IV, and 4 in the rituximab + other chemotherapy regimens, 1 patient developed an intolerable III / IV infusion reaction in the second episode of rituximab infusion, followed by conventional infusion, and was removed. 138 patients received a total of 683 courses of rituximab, a course of treatment 3-9, the average course of treatment ( $5.05 \pm 1.651$ );

## 1.2 Infusion method

139 patients were treated with rituximab standard dose of  $375\text{mg} / \text{m}^2$ , the first time to accept the rituximab are using conventional speed control method: 100mg rituximab + 0.9% NS100ml, 500mg rituximab + 0.9% NS500ml intravenous infusion, the initial speed of 50mg / H, no discomfort after every 30min increase 50ml / h, the maximum drip rate of 400mg / h. The patients who did not appear III ~ IV instillation reaction after the rituximab treatment, receiving follow-up rituximab infusion using rapid infusion method, that is 100mg rituximab + 0.9% NS100ml, 30min drop to finished, 500mg rituximab + 0.9% NS250ml, drops to finish in 60min. In the 30 minutes before the conventional speed control and rapid infusion, phenol kappa, diphenhydramine, cimetidine and dexamethasone were used for pretreatment and the combined use of a precision filter infusion set (filter medium pore size 5.0ug), to reduce the damage and speed of particles. Dripping the whole to be bedside ECG monitoring vital signs to inform patients and their families such as skin rash, itching, chills, chest tightness, difficulty breathing and so on, immediately call the bell to inform doctors and nurses.

## 1.3 Results

From the 139 patients treated with the first rituximab infusion (ie, conventional speed control), 31 patients had I ~ II infusion reaction, the incidence rate of 22.3%, rash in 8 cases, 19 cases of chill fever, hypertension in 4 cases, chest tightness in 7 cases, did not appear III ~ IV level infusion reaction, followed by 3-9 courses of rituximab infusion, 1 patient in the second course of the rituximab rapid infusion in the intolerable III / IV infusion reaction (the incidence of 0.71%), after the suspension of infusion and the abolition of rapid infusion, prescribed to give antihistamines, anti-allergy and other drugs symptomatic treatment, symptom relief, followed by treatment were conventional drops and be removed. The remaining 138 patients were given 683 times the rituximab rapid infusion were successfully completed treatment.

# 2. Care

## 2.1 Psychological care

lymphoma for malignant blood tumors, treatment cycle is long, the rituximab is expensive, patients with high expectations of treatment. Patients often show tension, anxiety, fear, despair, psychological pressure. In this regard, we need to pay attention to the psychological intervention before infusion, to explain in detail the meridian pharmacological effects, adverse reactions and coping methods, inform the patient infusion reaction is often a transient, and actively anti-allergic treatment can gradually ease. Educate the patients about the feeling of suffocated, chest tightness, itching or body chills, which is often the precursor of adverse reactions. Eliminate the psychological pressure of patients, ease their anxiety, tension, and enhance their compliance for the treatment and their confidence to overcome

the disease.

## 2.2 Infusion reaction care

Rituximab is allogeneic protein, most patients in the first medication develop adverse reactions within 2 hours, a very small number of develop out of the first time. Light cases include rash, chill fever, severe cases can develop to bronchial spasm, difficulty breathing, and throat edema and so on. Before administration of antihistamines, anti-allergy drugs<sup>6-7</sup>. After the start of the drip, the nurse should closely observe the use of ECG monitoring, monitoring blood pressure, heart rate, respiratory and oxygen saturation once every 15min, 4 consecutive times, no abnormality can be extended to every 30min measurement time until all the liquid drops finished. Nurses bedside observed for 15 minutes, educate patients how to pager. If the emergence of skin rash (flushing), chill fever, high blood pressure or low blood pressure, chest tightness, difficulty breathing and other inappropriate, immediately suspended infusion, replace the infusion device, 0.9% NS100ml intravenous infusion, with the doctor for acute infusion of adverse reactions. After the discomfort symptoms subsided or remission, vital signs were stable, the prescription for pretreatment can continue to rituximab treatment again. In this paper, only one patient in the rapid infusion of rituximab in the skin flushing infusion reaction, after slowing down the dripping, the symptoms subsided.

### 2.2.1 Rash

The group of 139 patients in the first conventional infusion in 8 cases of rash, after treatment to ease. 1 patient in the rapid infusion of facial and double palms appear skin flush version of the slight itching, to slow down the infusion rate of 15 minutes after the symptoms ease, and finally successfully completed rituximab treatment.

### 2.2.2 Chill fever

Chill fever should pay attention to keep warm, increase the cover, hot water bag place on the foot, but not to cause burns; muscle tension when nervous, should guide patients to take a deep breath, try to relax, preparation for the prevention of falling from bed. High fever patients who prescribed antipyretic analgesics and physical cooling, inform to drink warm water several times, if necessary, intravenous fluid and electrolyte, to maintain indoor ventilation, temperature and humidity appropriate, fever, accompanied by a large number of sweating, to help patients timely change the clothes and mattresses with sweats, to avoid cold, to strengthen the infusion pipe fixed, to avoid sweating and more, dressing caused by pipe prolapse. The group of 139 patients in the first conventional infusion in 19 cases of chill fever, after treatment the symptoms ease. In rituximab rapid infusion, the removal of cases is a serious chill fever, dyspnea symptoms, after treatment to ease and conventional drip finished. Although the incidence is only 0.71%, but can not be ignored.

### 2.2.3 Hypertension or orthostatic hypotension

According to the current domestic individual reports, the rituximab rapid infusion in the incidence of hypotension was 1.36%. Cardiovascular events may bring serious consequences, therefore, the rituximab rapid infusion should be given continuous ECG monitoring, monitoring of blood pressure, heart rate, breathing, oxygen saturation changes in order to timely detection of changes in vital signs, symptomatic treatment. The patient's blood pressure was significantly higher (higher than 140/90 mmHg) or decreased (less than 80/50 mmHg), or the systolic blood pressure of the hypertensive patients was reduced if the patient had palpitations, chest tightness, dyspnea, etc. during rapid infusion. More than 30mmHg, heart rate significantly increased (increased by 50% or more) and other obvious discomfort, should immediately inform the doctor, suspended rituximab infusion, compliance with dexamethasone, boost or antihypertensive drugs, oxygen and other symptomatic treatment. The group of 139 patients in the first conventional infusion, there are 4 cases of hypertension, prescribed by oral antihypertensive drugs after half an hour, blood pressure

will reach the normal range; the rituximab rapid infusion in the absence of high blood pressure or hypotension of the adverse reactions.

#### 2.2.4 Chest tightness, difficulty breathing

Once the patients' symptoms occurred, patients have to be in half sitting position, monitoring the respiratory rate, rhythm, oxygen saturation, low flow oxygen. If severe symptoms occurred, patients should be suspended infusion, to the high flow of oxygen, if necessary, mask oxygen, and do the preparation of tracheotomy. Appease the patient, relieve the patient's tension, inform the patient tension will increase the oxygen consumption, and increase the symptoms of dyspnea. Teach the patient to take a deep breath to ensure that the organization has sufficient oxygen.

#### 2.2.5 Serious infusion of adverse events in the plan and care

The major serious adverse events that may occur during the rapid infusion of rituximab includes anemia, bone marrow failure, leukocyte and thrombocytopenia, digestive diseases, infections and liver toxicity, thus immediately postpone the infusion of adverse events: ① 0.9% NS intravenous drip, in situ rescue, bedside ready to rescue vehicles, the rapid establishment of two intravenous access, in order to timely input of liquids and drugs such as anti-allergy, antihistamines, cardiac, diuretic, bronchodilator, shock medications; ② keep the airway patency, to oxygen, prepare for suction and tracheotomy, if necessary, to help doctors tracheotomy; ③ cardiopulmonary resuscitation if necessary; ④ ECG monitoring, closely observation of the breathing, blood pressure, heart sounds, color, body temperature changes, and monitoring of urine output of patients; ⑤ doctor prescribed patients with blood samples collected; ⑥ in the rescue process to keep the sick room quiet, comfort patients and their families, to stabilize their emotions, good explanation of work, strengthen psychological care, enhance self-confidence, so that it successfully through the dangerous period. Patients with severe infusion of adverse reactions are banned from re-use with rituximab.

## Conclusion

Rituximab as a commonly used drug for lymphoma, the rapid infusion method is safe and feasible, and compared with the traditional speed control method has more advantages: can significantly shorten the infusion time, reduce the patient's bed time and activity is limited, while reducing nursing staff workload, increase the communication between nurses and patients and observation of the time; infusion reaction less, the patient can tolerate, have good safety, worthy of clinical application.

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