

# Nursing Care of Infliximab for Injection in Crohn's Disease

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## Abstract

**Objective:** To summarize the nursing experience of infliximab injection in the treatment of Crohn's disease. **Methods:** 25 patients with Crohn's disease admitted to our hospital from November 2017 to February 2024 were treated with infliximab. The therapeutic effect and adverse drug reactions were observed, nursing intervention was given, and follow-up was performed at 2 weeks, 6 weeks after the first treatment and every 2 months after the treatment cycle. According to Crohn's disease activity index (CDAI) score, 23 cases with  $\leq 4$  were classified as remission stage and 2 cases with 6 were classified as mild activity stage. Infliximab-treated Crohn's patients had a good prognosis and minor adverse reactions. A correct grasp of the basic knowledge of the drug, standardized operation, attention to the psychological state of the patient, close observation of the change of the patient's condition, and predictability of the treatment of adverse drug reactions are the guarantee of smooth treatment.

## Keywords

Crohn's Disease, Infliximab, Adverse Reactions, Nursing

## 1. Introduction

Crohn's disease (CD) is a chronic inflammatory granulomatous disease that involves the entire digestive tract, primarily involving the distal ileum and its adjacent colon. The main symptoms are abdominal pain, diarrhea, and intestinal obstruction, with external manifestations such as fever and malnutrition. The course of the disease is long, often repeated, and not easy to cure. In recent years,  $\text{tnf-}\alpha$  has been regarded as a key cytokine in the pathogenesis of CD, which not only initiates and stimulates the immune response of CD, but also induces the release of other inflammatory mediators (such as IL-1, IL-6, IFN- $\gamma$ , etc.), thus

further developing progressive inflammatory response [2] [3]. Infliximab for injection (IFX), trade name: Gram, as a biotargeted preparation, can specifically bind to the pro-inflammatory factor TNF- $\alpha$  synthesized under inflammatory stimulation, and then play a pharmacological role [4]. Our department through the patient's careful observation and nursing intervention, the effect is satisfactory, now the nursing experience is reported as follows.

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## 2. Clinical Data

### 2.1. General Data

From November 2017 to February 2024, a total of 25 patients with CD were admitted to our hospital, including 19 males and 6 females, aged 14 - 59 years, with disease course ranging from 6 months to 3 years. Lesion site: 20 patients had small intestine and colon, and 5 patients had small intestine. The clinical symptoms, transcolonoscopy and colonoscopy, and pathological examination of the patients all met the diagnostic criteria in the Consensus Opinions [5] on the Diagnosis and Treatment of inflammatory bowel Disease.

### 2.2. Treatment Methods

Based on the routine treatment of aminosalicylic acid, the patient was treated with gram-like intravenous infusion. The drug should not be infused with other drugs at the same time, and the infusion time should not be less than 2 hours; the dose is calculated at 5 mg/kg. Injections are given at weeks 0, 2, and 6, and then administered every 8 weeks, 6 times as the base course. Blood routine, liver function, chest radiograph and PPD examinations were performed at the first infusion to rule out tuberculosis and other viral infections. Blood routine, liver and kidney function, C-reactive protein, erythrocyte sedimentation rate and other results were monitored at the later stage of infusion. Before each treatment, the biotherapy evaluation form should be filled out and the treatment consent form should be signed.

## 2.3. Results

The clinical symptoms of the 18 patients were relieved, the frequency of stool was reduced, blood and stool disappeared, fistulas were closed, abdominal pain and distension were alleviated, and weight was increased. The results of colonoscopy showed that the patients were basically normal. Seven patients had fever, mild gastrointestinal symptoms, colonoscopy showed the formation of false polyps, and mild mucosal inflammation.

## 3. Care

### 3.1. Health Education

Upon admission, the patient's education level, psychological state, understanding of the disease, economic and family support system, etc. should be evaluated, and the patient should be educated on personalized diet, drugs, activities, etc. Establish a WeChat communication group between patients and nurses to facilitate communication between patients and between patients and medical staff. Inform patients of the purpose and method of treatment, as well as possible adverse reactions and preventive measures in the process, reduce patients' fear of treatment, and encourage patients to actively cooperate with treatment.

### 3.2. Medication Care

#### 3.2.1. Preparation of Liquid Medicine

1) The medicine should be dried and stored before opening, and stored away from light at 2°C - 8°C. 2) Take off the lid of the medicine bottle, wipe the top of the bottle with a medical alcohol swab, inject 10 ml sterile water with a 21 syringe, tilt 30°, the diluted medicine bottle should gently rotate the bottle body, avoid long time or force shaking, so that the powder is fully dissolved, if there is foam, it should be left for 5 minutes after use, the dissolved medicine liquid should be colorless to light yellow liquid, milky white bright. 3) After dissolving, add 0.9% sodium chloride injection and extract it into 100 ml with the same amount of liquid to gently mix. Since the gram is protein, there may be some translucent particles in the solution. If there are opaque particles, discoloration, or other substances in the solution, the use cannot continue. 4) The entire treatment should be strictly aseptic, the formulated solution should be ready for use within 3 hours, and the infusion ingredients that are not used up in more than 3 hours cannot be stored for use.

#### 3.2.2. Drug Infusion

Arrange a single room for UV disinfection for half an hour. First, exhaust with 0.9% sodium chloride injection 100 ml, and use an infusion tube with a constant speed regulator in the infusion set. Then a relatively thick and straight blood vessel was selected to establish the vein indentation needle path. After 10 minutes of infusion, replace grams at the initial infusion rate of 10 ml/h, adjust to 20 ml/h after 15 minutes, 40 ml/h after 30 minutes, 45 minutes to 80 ml/h, 60

minutes to 150 ml/h, and 90 minutes to 250 ml/h until the gram fluid infusion is complete. The infusion liquid concentration should be between 0.4mg/ml and 4 mg/ml, and finally flush the tube with 0.9% sodium chloride injection to reduce waste. The infusion time should not be less than 2 hours, and the vital signs should be monitored with an ECG monitor during the infusion, observed and recorded every 30 minutes, and reported to the doctor immediately if there is any abnormality.

### **3.3. Nursing of Common adverse Drug Reactions**

#### **3.3.1. Infusion Reaction**

Is a relatively common adverse reaction of IFX. Depending on their severity, anaphylaxis can be classified as mild (transient skin redness or rash), moderate (urticaria, myalgia, drug fever), severe (bronchospasm, angioedema, hypotension), or fatal an [6] aphyllaxis. During treatment in our department, there were 2 cases of anaphylaxis, both occurring during the infusion process, of which 1 case was mild and manifested as transient skin redness and chest tightness. After slowing down the infusion speed, the symptoms were alleviated; 1 case had moderate fever with body temperature of 38°C, skin pruritus and urticaria, which improved after anti-allergy treatment. The first injection was completed. Nursing staff should strengthen vital signs monitoring, early detection and early treatment, reduce adverse drug reactions and improve curative effect. When there is a mild to moderate allergic reaction, the speed should be slowed down or anti-allergy drugs should be given according to the doctor's advice, and the infusion should be given after the symptoms disappear. In the event of a severe allergic reaction, the medication should be stopped immediately and the tube flushed with normal saline. Treatment should be carried out according to the anaphylactic shock, and symptomatic treatment and rescue should be carried out according to the doctor's advice. Inform the patient to stay in the hospital for observation, and be alert to the occurrence of delayed anaphylaxis.

#### **3.3.2. Infection**

IFX as an immunomodulatory treatment may reduce the immune system's ability to fight infection and increase the risk of infection. It can involve multiple organs in the body and causes pathogens including viruses, bacteria and fungi. Tuberculosis infections are a particular concern in China. Prior to the application of IFX, one patient with latent tuberculosis was found in our department and was treated with a combination of isoniazid, rifampicin, pyrazinamide and ethambutol hydrochloride. On the basis of anti-tuberculosis, the next course of IFX treatment was continued. After 8 weeks, the tuberculosis lesion was absorbed by 50% in chest radiograph, and the sputum smear was negative for 3 consecutive times. No liver injury was detected. Before IFX treatment, CMV, tuberculosis bacillus, *Clostridium difficile*, etc. will be routinely screened in cooperation with the doctor. The possibility of co-infection should also be vigilant during treatment. Instruct patients to avoid crowded places with cloudy air, wear

masks if necessary, and take good personal protection. And guide patients to monitor signs of infection: daily temperature check, whether there is fever, persistent cough, blood in sputum, night sweats and other symptoms. Guide patients with combined anti-infective drugs to appropriately increase nutrition, take medicine on time, pay attention to observe the adverse reactions of drugs, and seek medical treatment in time if there is discomfort.

### **3.3.3. Hepatitis B Virus Reactivation and Liver Toxicity**

Prior to IFX treatment, two patients with chronic hepatitis B were also identified in our department, both of whom were long-term oral entecavir patients. HBV-DNA monitoring during IFX treatment showed no hepatitis B virus activation. One patient had no liver damage and the other had IFX-related liver dysfunction with a slight elevation after 4 courses of IFX treatment. After discontinuing the combination immunosuppressants, the patient recovered on his own, without affecting subsequent IFX use. Nurses should cooperate with doctors to screen patients for hepatitis virus and liver function before and during treatment with this product. If positive, they should be closely monitored during treatment to guard against virus reactivation [7] caused by IFX. Patients with elevated liver enzymes more than 3 times the upper limit of normal should discontinue the drug.

### **3.4. Psychological Care**

Crohn's disease is a refractory, persistent chronic inflammation of the gut that often requires lifelong treatment. As a biologic to treat Crohn's disease, it is expensive and financially burdensome, with patients concerned about efficacy and adverse effects. Medical staff should explain its pharmacological effects, advantages, treatment process, adverse reactions and coping methods to patients to enhance their courage and confidence [8] to fight against the disease. And according to the psychological state and needs of different patients, the method of psychological counseling is used to reduce the psychological pressure of patients.

### **3.5. Discharge Guidance**

Ensure adequate sleep, do a good job of self-protection, moderate exercise, diet to give high protein, high calorie, low fat and less slag food, keep an optimistic attitude. Instruct patients to self-monitor abdominal pain and stool, and seek medical attention in time if there is any abnormality. At the same time, patients using hormones or immunosuppressants should be strictly followed up, and do not arbitrarily add or subtract medication. Before discharge, a self-examination manual should be issued to guide patients to fill in. Carefully record the next treatment date and come to the hospital regularly. Monitor blood routine, liver and kidney function, blood clotting 4 items, do a C-reactive protein test every 2 to 4 weeks, do chest film and tuberculin test after 3 months of treatment, do colonoscopy after 6 months, rule out tuberculosis, anal fistula, intestinal obstruction and other complications [9].

### 3.6. Continuation of Nursing Care

Our department has established an inflammatory bowel Disease team to build a patient database. The contents include general information such as name, gender, age, education, occupation, economic status and living habits; Clinical data include: symptoms and signs, imaging data, treatment time, dose, frequency, lesion [10] site, etc. Patients were followed up 2 weeks, 6 weeks after the first treatment, and every 2 months after the first treatment cycle. Patients were reminded of the visit time by phone, WeChat public accounts and patient groups were established, disease-related knowledge was regularly pushed to patients, diet, exercise and medication guidance was provided, and online and offline discussions and large patient meetings were held regularly. Effectively improve patients' compliance and continuity, so that patients actively cooperate with treatment and carry out effective self-management.

### 4. Summary

In recent years, the incidence of CD has been on the rise year by year, with long course, long time and many complications, which seriously affect the quality of life of patients. Salicylic acid preparation, glucocorticoid, immunosuppressant and surgical treatment are commonly used in clinic, but the therapeutic effect is not ideal. As a monoclonal antibody against INF- $\alpha$ , it can bind to INF- $\alpha$  in human body and block the inflammatory response induced by it, so as to alleviate Crohn's disease and other inflammatory bowel diseases, so as to achieve therapeutic purposes. At present, it is widely used all over the world, and has achieved a good curative effect. However, in the treatment process, the use of grams is prone to infusion reaction, hepatitis B virus reactivation and liver toxicity, so in the treatment of patients, nursing intervention is particularly important. In the process of treating patients, nursing staff should correctly grasp the basic knowledge of drugs, preparation and use methods, pay attention to the patient's psychological state, closely observe the changes in the patient's condition, timely understand the results of the examination, timely cooperate with the doctor symptomatic treatment, can improve the safety of medication and patient compliance, promote the rehabilitation of patients.

### Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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