

**EARLY AND DELAYED HYPERSENSITIVITY REACTION DUE TO OXALIPLATIN
DRUG INFUSION: QUATERNARY CARE HOSPITAL****Dr. Mannu Jaiswar^{1*}, Dr. Tejinder Singh², Dr. Vijay Dabero³ and Dr. Shubham Gandhi⁴**¹Pharm D, Oncology Clinical Pharmacist,²Senior Medical Oncology Consultant,³MBBS, MD In Pharmacology, Clinical Pharmacologist, HOD,⁴DNB Medical Oncology Resident,

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ABSTRACT

Early and delayed acute allergic reactions to inj. Oxaliplatin infusion in a day care chemotherapy are not uncommon and are easily manageable for most of the events. It is important to document and analyse all the events in contemporary medical oncology practice for better utilisation, better outcomes, and personal resources.

Objective: Our objective was to check the early and delayed acute ADRs reaction occurring in day-care cancer chemotherapy settings. **Result:** Hundred patients were identified for the study in which they are classified as early and delayed acute allergic reactions and their grade scale in 3-4 severity. The reactions seen in patients such as rash, itching on palms, and redness, however, in some of the breathlessness also observed. **Conclusion:** The acute allergic reactions of oxaliplatin infusion can be early manageable with symptomatic treatment.

KEYWORDS: Oxaliplatin infusion, acute ADRs reactions, types of reactions, severity.

INTRODUCTION

Oxaliplatin a third-generation platinum compound, one of the mainstay drugs in the treatment of many gastrointestinal cancers, can give rise to hypersensitivity reactions sometimes with fatal outcomes. It is usually combined with 5-fluorouracil (5-FU), capecitabine, irinotecan, or cyclophosphamide. It is a non-cell cycle specific alkylating agent that causes abnormal crosslinking or cutting of DNA strands and eventually leading to cell death.^[1]

Adverse reactions to chemotherapy drugs occurring at various time intervals are well described.¹ Many current systemic treatment protocols include biological agents like Monoclonal antibodies, immune checkpoint inhibitors in addition to the standard cytotoxic chemotherapy drug either alone or in combinations.^[2]

Oxaliplatin is less nephrotoxic than cisplatin and less myelotoxic than carboplatin. The most characteristic and dose limiting toxicity of oxaliplatin is sensory neuropathy, transient acute cold related dysesthesias, sometimes pain associated although it is generally reversible. hypersensitivity reactions to oxaliplatin have been described as anaphylaxis. This reaction is clinically characterised by laryngospasm and wheezing and immunologically linked to the release of histamine and

other vasoactive substances.^[3]

Oxaliplatin-related HSRs can occur from the first administration; however, with an increased number of infusions the risk of reaction can increase accordingly.^[6,7,8,9] They can be classified as mild, with symptoms such as palmar or facial flushing, rash, urticaria, itching and erythema, but they may progress to severe reactions with Grade 3-4 bronchospasm, laryngospasm, hypotension or anaphylaxis that is sometimes fatal.^[6,10,11] The reported frequency of oxaliplatin-related HSRs has increased over time, due to the extensive use of this agent in several therapeutic settings.^[10]

Historically, the reported incidence of HSRs during oxaliplatin treatment was 1.8%,^[9] while the estimated actual incidence is 15-25% among all patients treated with oxaliplatin-based regimens.^[12] The management of HSRs is an issue because drug interruption is usually required. Oxaliplatin rechallenge should be wisely considered, based on the severity of the reaction. However, it is frequently required to permanently discontinue the drug and change the treatment regimen. Several studies have been conducted to identify potential predictive risk factors for oxaliplatin-related HSRs, but available data in the literature are heterogeneous and

findings remain controversial.^[9,13]

OBJECTIVE

Our objective was to check the early and delayed acute ADRs reaction occurring in day-care cancer chemotherapy settings because of multi-regimen chemotherapy and oxaliplatin infusion.

RESULT

In our study we analysed up to 50 patients, in which we were very focused on early and delayed hypersensitivity reactions occurring in patients, in that we traced the time period of infusion, exactly what time they started the infusion, and also the stop time of chemotherapy infusion, so that we know exactly the time of the reaction

occurring to patients so that we can differentiate between early and delayed hypersensitivity reactions based upon time intervals. What are the premeditations that are started for the patient before connecting the chemotherapy infusion as a precaution. The more frequently occurring hypersensitivity reaction is rash, itching, and purities compared to difficulty in breathing or shortness of breath. Here we observed that the oxaliplatin infusion is mainly the cause of hypersensitivity reactions to the skin as compared to the respiratory system. As per study data, the number of patients who are likely to be allergic to skin compared to respiratory organs due to oxaliplatin chemotherapy infusion.

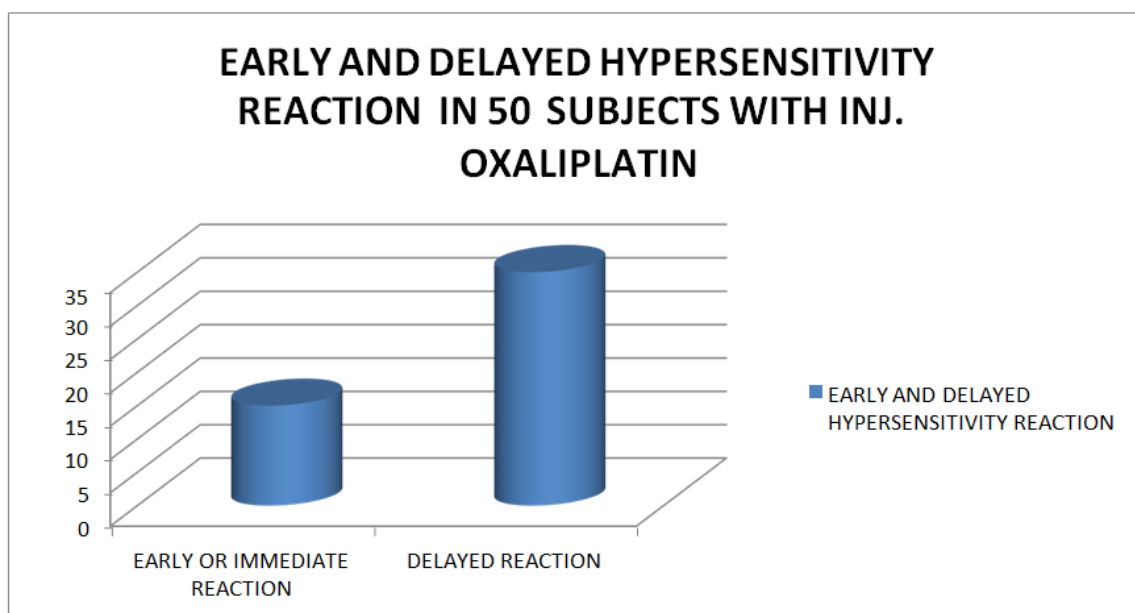


Figure 1: Severity and manifestation of Oxaliplatin hypersensitivity reaction.

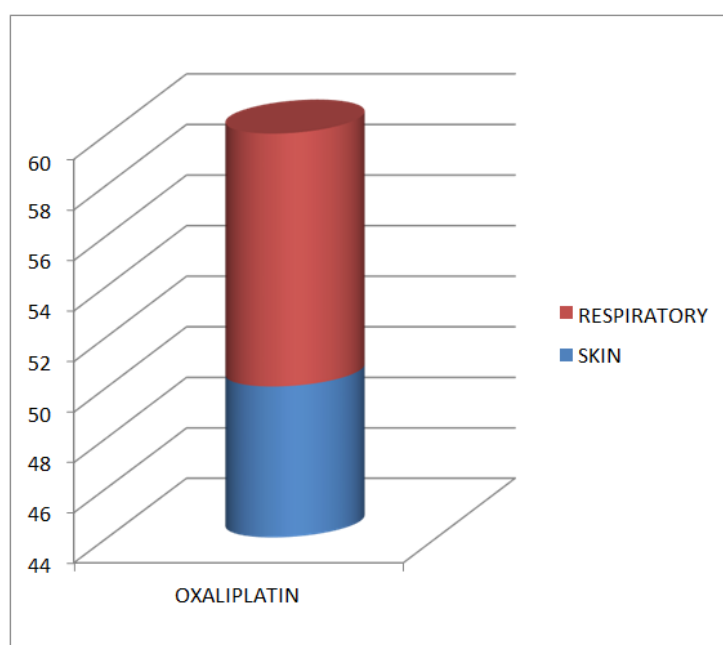


Figure 2: Presentation of acute adverse reaction to Oxaliplatin.

In our study we observed the whole process from the beginning of chemotherapy infusion when we started premedication along with the time after that, when the infusion was connected along with the patient vital monitoring sheet. In some patients, it showed that having acute allergic reactions after 10-15 minutes of chemotherapy infusion, and in some other patients, the allergic reaction occurs after completion of chemotherapy infusion. But the allergic reactions can be managed by giving the symptomatic treatment for the particular reaction that happened to the patient. As per our study, the early hypersensitivity reaction patient numbers are lower compared to the delayed hypersensitivity reaction patient numbers.

DISCUSSION

Hypersensitivity to platinum derivatives was first reported In 2004.^[14] A second report of delayed oxaliplatin induced, Laryngeal spasm was reported in 2009.^[15] Another report showing ADR developed 24 hours after the 1st and 2nd dose Infusion of oxaliplatin.^[16]

In our study we analysed that the patients who have received the multi-regimen of chemotherapy with oxaliplatin and as a single agent oxaliplatin infusion. We observed there are two kinds of hypersensitivity reactions due to oxaliplatin, such as early and delayed, in that patients developed allergic reactions such as purities, rash, itchiness on palms, and shortness of breath.

There are the two kinds of patients in which we observed in some of the patients allergic reactions start immediately after connecting the oxaliplatin infusion for 10-15 minutes. And vice versa; in some patients, an allergic reaction developed after being given a complete infusion of oxaliplatin over 2 hours.

The normal range for oxaliplatin infusion is 250 ml/hr in 500 ml of dextrose over 2 hours. While connecting the infusion, we focused on early and delayed hypersensitivity reactions, in that we saw that some of the patient allergic reactions showed immediately after starting the infusion, while on the other side, some of the patient allergic reactions showed after finishing the complete infusion. The acute allergic reactions occurred in patients; they subsided after being given stat inj. Avil 1 ampule and inj. Hydrocortisone 1 ampule.

Adverse drug reactions have been well studied and described in many literature or articles regarding the acute, subacute, and chronic toxicity of chemotherapy drugs. As per that, the standard premedication is given with respect to different class chemotherapy drugs for precaution of any kind of allergic reactions or hypersensitivity. Day-care unit acute allergic reactions are common, such as nausea, vomiting, itching, rash, and fever, because of multiple regimens of chemotherapy drugs or a single agent of chemotherapy.

CONCLUSION

The multi-regimen chemotherapy and single agent of oxaliplatin infusion can cause hypersensitivity reactions or acute allergic reactions the reactions are might be early and delayed, but the reactions can be managed by giving symptomatic treatment.

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