



# Coadministration of 5% Glucose Solution and Dexamethasone and Oxaliplatin-Related Vascular Pain Grade: A Case Study

Yuko Okada, RN, Sayoko Kajjume, RN, CNS, Takoko Taniguchi, RN, CNS, Shizue Kimoto, BCOPS, Yoshikazu Ogawa, BCOPS, and Takayoshi Kiba, MD, PhD

Agents used in cancer treatment can cause many side effects in patients. Oxaliplatin is a platinum-based cytotoxic agent that is used in the treatment of colorectal cancers, and one of its potential side effects is vascular pain. The current article will discuss the coadministration of dexamethasone and its potential effect on oxaliplatin-related vascular pain.

Yuko Okada, RN, Sayoko Kajjume, RN, CNS, and Takoko Taniguchi, RN, CNS, are nurses, and Shizue Kimoto, BCOPS, and Yoshikazu Ogawa, BCOPS, are pharmacists, all in the cancer chemotherapy center at the National Hospital Organization Kure Medical Center; and Takayoshi Kiba, MD, PhD, is a section chief in the Division of Modern Technology at the National Hospital Organization Kure Medical Center and Chugoku Cancer Center, all in Hiroshima, Japan. The authors take full responsibility for the content of the article. The authors did not receive honoraria for this work. No financial relationships relevant to the content of this article have been disclosed by the authors or editorial staff. Kiba can be reached at [takkiba@hotmail.com](mailto:takkiba@hotmail.com), with copy to editor at [CJONEditor@ons.org](mailto:CJONEditor@ons.org).

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Oxaliplatin is a platinum-based cytotoxic agent commonly used to treat colorectal cancers (de Gramont et al., 2000). The most commonly reported adverse events related to oxaliplatin are fatigue, nausea, vomiting, diarrhea, and neuropathy (de Gramont et al., 2000). Vascular pain at the site of infusion is a lesser experienced, but significant, side effect. Yoshida et al. (2012) found that the direct addition of dexamethasone (DEX) to oxaliplatin infusion helps control the vascular pain experienced with oxaliplatin administration. Despite following this recommendation, some patients continue to experience vascular pain with oxaliplatin infusion.

## Case Report

This case study will discuss two patients who had metastatic colorectal cancer and received oxaliplatin. Both patients reported vascular pain after the administration of oxaliplatin through

a peripheral IV catheter placed in the forearm. The patients reported grade 3 vascular pain at the site of infusion, which persisted for five days following infusion. The half-life of oxaliplatin is 14.1 minutes, with disappearance of the drug from the blood vessels about three hours after its administration (Ehrsson, Wallin, & Yachnin, 2002). In the following instances, the oxaliplatin was dissolved in 250 ml of 5% glucose solution and the dose of DEX was 3.3 mg/m<sup>2</sup>. Prior to the onset of any pain, the oxaliplatin was administered with the addition of DEX. DEX was given simultaneously with the oxaliplatin infusion through the same primary IV. Using this method, the patients reported an improvement in their vascular pain (vasculitis) from grade 3 to no pain (grade 1) (see Table 1).

On a subsequent infusion, DEX was added directly to the oxaliplatin. With this method, the pain improved from grade 3 to grade 2 immediately, persisted for several days, and gradually resolved.

The final approach was coadministration of the oxaliplatin and DEX at initiation of infusion. Prior to the onset of any pain, DEX and oxaliplatin were given simultaneously through the same primary IV. The DEX was given in conjunction with the main line using secondary tubing. No vascular pain was experienced with this administration strategy.

## Discussion

Vascular pain induced by IV infusion of antineoplastic agents can affect patient ability to complete or continue chemotherapy. A number of methods for preventing antineoplastic agent-associated phlebitis have been reported (Curran, Luce, & Page, 1990); however, none of these are completely effective. Corticosteroids have been suggested to be effective for the prevention of phlebitis (De Cock, Vermeij, & Stijnen, 1984; Kohlhardt, 1994). Tononi et al. (1997) reported that post-treatment with DEX reduced phlebitis caused by vinorelbine. Kohno et al. (2008) suggested that pretreatment with DEX was more effective than post-treatment. Moreover, Jerremalm et al. (2002) reported that the addition of steroids to oxaliplatin is useful in controlling vascular pain.

Oxaliplatin may be given using a peripheral IV, central line (port), or peripherally inserted central catheter (PICC) line. Yoshida et al. (2012) evaluated the effectiveness of DEX for controlling vascular pain caused by the administration of oxaliplatin via the peripheral vein. The study included 47 patients who received XELOX (capecitabine plus oxaliplatin) and bevacizumab for metastatic colorectal cancer. In all the patients, oxaliplatin was administered in combination with