Clinical Case Reports International

Case Report
Published: 12 Oct, 2017

A Case of Oxaliplatin-Related Ocular Toxicity

Wei-Yanhong[1], Han-Zheng Xiang[2], Du-Xiuping[2]*

[1]Department of Oncology, The Central Hospital of Yongzhou City Hunan Province, China

[2]Department of Oncology, The Affiliated Hospital of Xuzhou University College, China

Abstract

We report the case of a 64-year-old woman with advanced adenocarcinoma of the rectum who received oxaliplatin on a FOLFOX4 schedule. About three hours after the treatment, she experienced ocular symptoms, including blurred vision, transient bilateral temporal hemianopsia and progressive visual loss, triggered or aggravated by exposure to cold. The ocular changes are transient and reversible. Ophthalmologic examination and an MRI of the brain demonstrated no abnormalities. Oxaliplatin has been documented to produce a variety of ocular side effects, the clinicians have to be aware of this possible toxicity, in accordance with the increasing concern for the quality of life of patients with cancer.

Introduction

Oxaliplatin is a third-generation 1,2-diaminocyclohexane-platinum derivative, which has marked efficacy in advanced colorectal cancer when given in combination with fluorouracil (5-FU) and leucovorin [1]. Gastrointestinal symptoms and peripheral neuropathy are the most frequently encountered non-hematological adverse effects [2]. Two different types of neurotoxicity have been described, consisting of acute neurotoxicity and cumulative toxicity. Acute neurotoxicity typically occurs 30-60 minutes after infusion and is rapidly reversible without persistent impairment of sensory functions. Some studies have suggested that oxaliplatin produces its acute effects on peripheral nerves by impairing voltage-gated potassium channels (VGKC) [3]. Cumulative neuropathy is characterized by reducing sensory nerve action potentials and decreasing sensory nerve conduction [4]. The broad spectrum of ophthalmic complications induced by oxaliplatin includes transient and chronic disorders. Mesquidaa et al. [5] have reported the case of a 52-year-old woman experiencing severe impairment of the retinal pigment epithelium while receiving oxaliplatin. This damage could be permanent. Little is known about the mechanisms responsible for the development of neuropathy.

Case Report

A 64-year-old woman was diagnosed with advanced adenocarcinoma of the rectum, accompanying by hepatic metastasis. The primary tumor is an irregular ulcer uplift about seven centimeters from the anus. Pathologic examination was significant for an invasive, moderately - poorly differentiated adenocarcinoma, partly for mucinous adenocarcinoma. A classical FOLFOX4 chemotherapy regimen was initiated after recovery from surgery. Leucovorin (200 mg/m^2) administration, prior to fluorouracil (5-FU), fluorouracil (5-FU) (1,000 mg/day) by continuous infusion over 48 hours and oxaliplatin (100 mg/m^2) intravenous infusion were administered every 3 weeks. About three hours after receiving oxaliplatin, she complained of blurred vision, bilateral temporal hemianopsia and visual loss as well as neurological symptoms, such as paresthesia of the extremities, maintaining two or three minutes. After stopping oxaliplatin infusion, the patient was treated with FOLFIRI chemotherapy regimen which does not include oxaliplatin. And the visual disturbances such as transient bilateral temporal hemianopsia did not appear. Oxaliplatin-induced ocular examination did not say demonstrate any alteration in the retina or Optic papilla. Patients suffered from cataracts and eye tremor. Ophthalmologic examination demonstrated no lesion in the eye fundus. An MRI of the brain was performed, without revealing any abnormalities (Figure 1).

Discussion

Ocular adverse effects of Oxaliplatin are relatively rare; cinicians attach more attention on other major toxicities, such as haematological adverse effects, gastrointestinal symptoms, etc, thereby underestimating possible ocular toxicities. To date, Oxaliplatin has been documented to produce a variety of ocular side effects, including reversible symptoms and permanent changes [1]. Ocular

OPEN ACCESS

Correspondence:
Han-Zheng Xiang, Department of Oncology, The Affiliated Hospital of Xuzhou University College, No. 99 West Huaihai Road, Xuzhou, 221002, China, E-mail: cnhzxyq@163.com

Received Date: *06 Aug 2017*
Accepted Date: *05 Oct 2017*
Published Date: *12 Oct 2017*

Citation:
Wei-Yanhong, Han-Zheng Xiang, Du-Xiuping. A Case of Oxaliplatin-Related Ocular Toxicity. Clin Case Rep Int. 2017; 1: 1026.

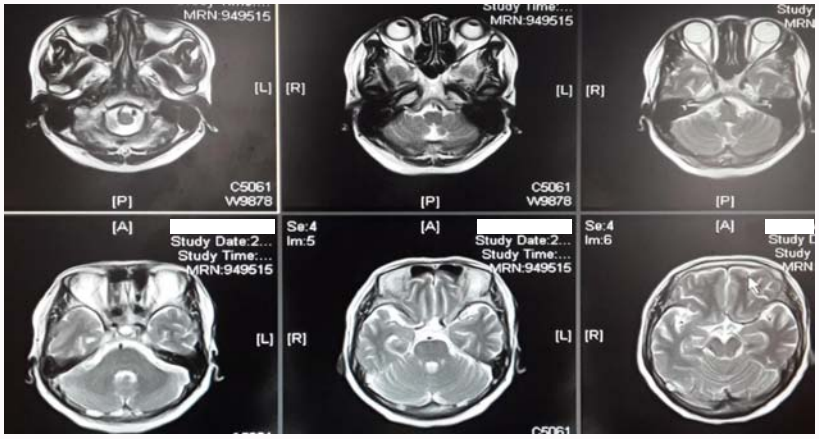

Figure 1: MRI demonstrated the brain and eyes were normal.

adverse effects related to Oxaliplatin are generally mild changes, such as blurred vision, conjunctivitis, tearing, abnormal lacrimation and so on [6,7]. Rarely occurring adverse effects of Oxaliplatin treatment are irreversible retinal pigment epithelium [5] and Posterior Reversible Encephalopathy Syndrome [8]. The mechanism of this toxicity remains unknown. After fluorouracil (5-FU) infusion, the similar ocular changes did not reoccur. To date, fluorouracil (5-FU) has not been reported as causes of ocular toxicities, causing us to favor oxaliplatin over fluorouracil (5-FU) as the culprit drug in our own patient. Various strategies have been proposed to prevent or treat oxaliplatin-induced neurotoxicity. Some studies indicate that oral administration of neurotropin, a neuromodulatory agent may protect against oxaliplatin-induced chronic neurotoxicity [9]. At the present time, dose adaptation and intermittent use of oxaliplatin along the OPTIMOX concept currently are the main tools for toxicity control [10].

With the increasing reports of ocular symptoms related to oxaliplatin, the clinicians and ophthalmologists should be alert to ocular adverse effects.

Conclusion

Our findings indicate that oxaliplatin can lead to visual disturbances, all of the changes being transient and reversible. However, there exists reported oxaliplatin - induced permanent visual loss [5]. Healthcare professionals have to be aware of this possible toxicity. Along with the increasing concern for quality of life, the detection and management of oxaliplatin -induced adverse effects at an early stage is of major clinical importance.

References

1. Wiseman LR, Adkins JC, Plosker GL, Goa KL. Oxaliplatin: a review of its use in the management of metastatic colorectal cancer. Drugs Ageing. 1999;14(6):459-75.
2. Cvitkovic E, Bekradda M. Oxaliplatin: a new therapeutic option in colorectal cancer. Semin Oncol. 1999;26(6):647-62.
3. Vincent A, Beeson D, Lang B. Molecular targets for autoimmune and genetic disorders of neuromuscular transmission. Eur J Biochem. 2000;267(23):6717-28.
4. Verstappen CC, Heimans JJ, Hoekman K, Postma TJ. Neurotoxic complications of chemotherapy in patients with cancer: clinical signs and optimal management. Drugs. 2003;63(15):1549-63.
5. Mesquidaa M, Sanchez-Dalmaua B, Ortiz-Perez S, Pelegrín L, Molina-Fernandez JJ, Figueras-Roca M, et al. Oxaliplatin-related ocular toxicity. Case Rep Oncol. 2010;3(3):423-7.
6. Simpson D, Dunn C, Curran M, Goa KL. Oxaliplatin: a review of its use in combination therapy for advanced metastatic colorectal cancer. Drugs. 2003;63(19):2127-56.
7. Imperia PS, Lazarus HM, Lass JH. Ocular complications of systemic cancer chemotherapy. Surv Ophthalmol. 1989;34(3):209-30.
8. Skelton MR, Goldberg RM, O'Neil BH. A case of oxaliplatin-related posterior reversible encephalopathy syndrome. Clin Colorectal Cancer. 2007;6(5):386-8.
9. Zhang RX, Lu ZH, Wan DS, Wu XJ, Ding PR, Kong LH, et al. Neuroprotective effect of neurotropin on chronic oxaliplatin-induced neurotoxicity in stage II and stage III colorectal cancer patients: results from a prospective, randomised, single-centre, pilot clinical trial. Int J Colorectal Dis. 2012;27(12):1645-50.
10. Grothey A. Clinical management of oxaliplatin-associated neurotoxicity. Clin Colorectal Cancer. 2005;5(1):38-46.