

Carboplatin: Case Study on Impact of Oncology Drug Shortages

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BACKGROUND

Carboplatin joined the growing list of drug shortages within the United States in March 2023. Carboplatin is chemotherapy that is used alone or in combination with other medications to treat many cancers. Several manufacturers had carboplatin on shortage due to manufacturing delays.¹ According to a Hematology/Oncology Pharmacy Association Survey, oncology drug shortages pose serious challenges.² Proper oversight, effective communication and collaborative efforts between healthcare professionals, drug manufacturers, distribution centers, and government agencies are recommended when managing drug shortages.³

The University of Illinois Oncology Clinic Pharmacy provides comprehensive services for the University of Illinois Cancer Center, which is part of the University of Illinois Health System. Current inventory management strategies include managing periodic automatic replenishment inventory levels of commonly utilized medications. When supply chain disruptions are anticipated, the usual practice is to increase stock levels to store approximately an extra week of product.

OBJECTIVE

Determine the impact of the current carboplatin shortage on patient care despite active mitigation and pharmaceutical sourcing strategies

STRATEGIES⁴

- Communication regarding carboplatin shortage and updates were released to providers and staff
- Pharmacy personnel performed physical inventory count of carboplatin daily
- Staff pharmacists ran daily and weekly reports of patients scheduled to receive carboplatin. The anticipated amount of carboplatin needed was compared with the on-hand carboplatin inventory to determine when our inventory would be insufficient
- Patients enrolled in clinical trials or those with curative treatment intent were prioritized
- Operational workflow was adjusted when carboplatin was to be administered as part of a multi-chemo regimen
- The regimen administered was altered by omitting doses of carboplatin, delaying treatment start dates, or modifying carboplatin to another platinum-based drug such as cisplatin or oxaliplatin
- Carboplatin doses were rounded down to the nearest 10 mg if the change fell within a 10% variance of the original treatment plan dose
- New standardized method of carboplatin dosing was adopted
- Procurement process was intensified by creating itemized backorder lists, increasing communication with respective wholesalers, and investigating alternative options in the medication supply chain

RESULTS

Figure 1: Distribution of Patients Affected by Mitigation Strategies from 4/20/23 to 6/20/23

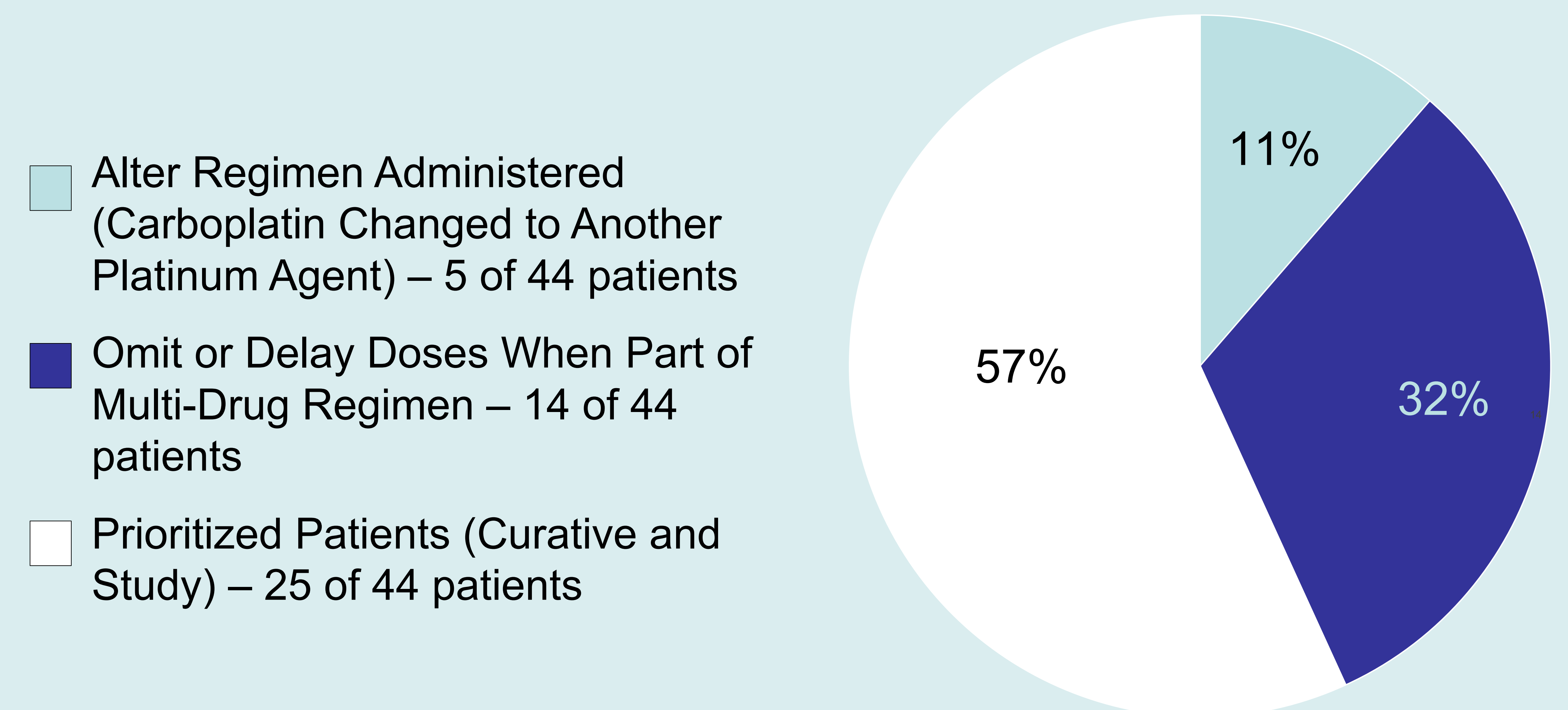
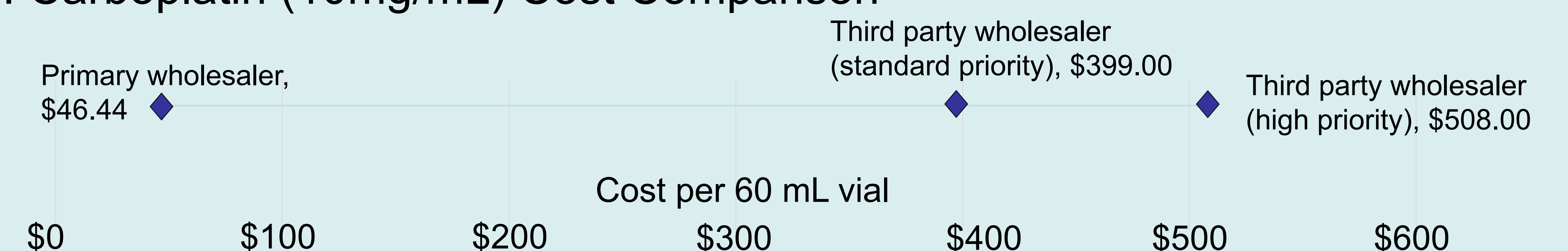


Figure 2: Carboplatin (10mg/mL) Cost Comparison



CONCLUSION

Chemotherapy drug shortages pose a serious threat to public health. Cooperation between manufacturers, wholesalers, and regulatory agencies will be needed to prevent future critical shortages in the future. Strategies to curb excess mark up on critical medications are also necessary to protect access to care for patients. Oncology pharmacists play vital roles in the health care team when overcoming challenging drug shortages of crucial oncology medications.

References

1. Current Drug Shortages. American Society of Health System Pharmacists. Accessed April 4, 2023. <https://www.ashp.org/drug-shortages/current-shortages>
2. McBride A, Hudson-DiSalle S, Pilz J, et al. National Survey on the Effect of Oncology Drug Shortages in Clinical Practice: A Hematology Oncology Pharmacy Association Survey. *JCO Oncol Pract*. 2022;18(8):e1289-e1296. doi:10.1200/OP.21.00883
3. Drug Shortages Issue Brief. Hematology Oncology Pharmacist Association. Updated January 19, 2022. Accessed April 18, 2023. https://www.hoparx.org/documents/64/HOPA_Drug_Shortages_Issue_Brief
4. ASHP Guidelines on Managing Drug Product Shortages. American Society of Health System Pharmacists. Updated June 19, 2018. Accessed April 18, 2023. <https://www.ashp.org/-/media/assets/policy-guidelines/docs/guidelines/managing-drug-product-shortages.ashx>