Appropriateness of NK1-receptor antagonist utilization in patients receiving chemotherapy

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Background

While chemotherapy is considered a life-prolonging treatment for cancer patients, it is usually associated with tremendously undesired nausea and emesis. The uncomfortable adverse effects are so distressing that patients may delay or decline treatment. The NK-1 receptors, in vomiting centers within the central nervous system, are activated by substance P released as undesired outcomes of chemotherapy. NK1-receptor antagonists prevent both acute and delayed chemotherapy-induced nausea and vomiting (CINV). All guidelines recommend the use of 5-HT3–receptor and NK1-receptor antagonists with steroids for patients receiving highly emetogenic chemotherapy (HEC) and anthracycline-based chemotherapy regimens.

Purpose

In this retrospective study, NK1-receptor antagonists administered in cancer patients were evaluated to understand utilization appropriately.

Method

In this retrospective study, 181 cancer patients were recruited between January 2016 and December 2016. This study follows the American Society of Health-System Pharmacists (ASHP) guidelines for drug utilization evaluation (DUE). The evaluation criteria included patients’ condition, doses, periods of administration, and prophylaxis CINV.

Results

In this retrospective study, 72 males and 109 females were recruited. The average age of the patients was 55±12.2 years old. There were 77 breast cancer patients, 36 head and neck cancer patients, 36 lung cancer patients, 9 diffuse large B-cell lymphoma patients, 5 colorectal cancer patients, 4 gastric cancer patients, 5 lymphoma patients, and 9 other cancer types patients. With regard to the use of drugs, there were 9 (5%) Doxorubicin+Cyclophosphamide (AC), 34 (18.8%) Epirubicin+Cyclophosphamide (CE), 13 (7.2%) Epirubicin+Cyclophosphamide+Fluorouracil (CEF), 20 (11%) Cisplatin+ Fluorouracil (PF), 13 (7.2%) Docetaxel+Cisplatin+ Fluorouracil (TPF), 23 (12.7%) Alimta+Cisplatin, and 4 (2.2%) Etoposide+Cisplatin. 145 cases (80.1%) used NK1-receptor antagonist appropriately, and 36 cases (19.9%) used it inappropriately. Within the 36 cases, 8 cases took moderate emetic risk chemotherapeutic drugs, which were not recommended to use NK1-receptor antagonists; 21 cases were administered both oral and intravenous NK1-receptor antagonists; 2 cases took NK1-receptor antagonists without chemotherapy, and 5 cases used more than a vial of NK1-receptor antagonist. The total expenses of inappropriate utilization is NT$ 75,774.

Conclusion

The results of NK1-receptor antagonist DUE showed that the rate of clinical compliance and adherence to the guideline recommendations is up to 80%. However, the other 20% of cases were provided antiemetic agents inappropriately. A multidisciplinary team, including physicians, pharmacists, nurses, and patients at the diagnostic and decision-making stages, should be involved in the quality improvement project to increase appropriate drug utilization.

Figure 1. Cancer types of patients receiving NK-1 receptor antagonists

Figure 2. Chemotherapy regimen for the patients receiving NK-1 receptor antagonists