Effect of Primary Prophylactic Granulocyte-Colony Stimulating Factor Use on Incidence of Neutropenia Hospitalizations for Elderly Early-stage Breast Cancer Patients Receiving Chemotherapy

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The aim of this study was to analyse the effects of primary prophylactic granulocyte-colony stimulating factor (PPG-CSF) administration and duration of administration on the occurrence of chemotherapy-induced neutropenia (CIN) hospitalisations in elderly female breast cancer patients. Before matching, the sample counted 10,441 breast cancer patients from the Surveillance, Epidemiology, and End Results (SEER) data including 337 subjects receiving PPG-CSF. A total of 1,760 women were included in the matched sample, including the 337 who received PPG-CSF. Neutropenia hospitalisations based on PPG-CSF administration were descriptively analysed and multivariate logistic regression was used to estimate the effect of PPG-CSF on probability of neutropenia hospitalisations and to estimate the effect of duration of PPG-CSF on neutropenia hospitalisations. 7% of patients with PPG-CSF (24/337) and 8% with no PPG-CSF (114/1423) were hospitalized due to neutropenia during 6 months after onset of chemotherapy. Administration of PPG-CSF during cycle 1 chemotherapy in women with similar neutropenia risk (matched sample) was associated with 16% lower probability of neutropenia hospitalisations (5.4% hospitalisations with no PPG-CSF vs. 4.6% hospitalisations with PPG-CSF) within the first 3 months and 17% lower probability of neutropenia hospitalisations (7.2% hospitalisations with no PPG-CSF vs. 6% hospitalisations with PPG-CSF) within the first 6 months ($p<0.05$), but not within the first month after chemotherapy initiation. Hospitalisations within the first 6 months were less frequent with longer PPG-CSF duration (≥5d) of administration ($p<0.10$). Therefore, the study showed that PPG-CSF administration and duration of administration (≥5d) reduced inpatient healthcare utilization in breast cancer patients.

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