Impact of Medicare’s Second National Coverage Determination (NCD) on ESA and Transfusion Use in Chemotherapy-treated Cancer Patients

Introduction

- Anemia is a common consequence of cancer and cancer treatment.
- Anemia management in chemotherapy-treated cancer patients includes use of ESAs and, when necessary, red blood cell transfusion.
- A Medicare NCD on ESA use in cancer and related neoplastic conditions, effective July 2007, restricted payment for ESA use.
- A potential consequence of the NCD was an increase in transfusion use, but national impact of the NCD on anemia practice has not been reported.
- We studied pre/post-NCD change in ESA and transfusion use in a nationally representative sample of chemotherapy-treated cancer patients, focusing on cancer types with frequent anemia. Our study was predicated on the assumption that hemoglobin (hgb) thresholds for cancer patients includes use of ESAs and, when transfusions may be necessary, to incorporate the pre-NCD and post-NCD period effects.

Methods

- Inclusion criteria: patients with lymphoma or lung, breast, or colorectal cancer who initiated a course of chemotherapy between September 1 and November 30, 2006 (pre-NCD period) or between September 1 and November 30, 2007 (post-NCD period), aged ≥64 at the time of initiation, and enrolled in Medicare Parts A and B with HMO coverage for one year before initiation.
- Patients with claims evidence of chronic kidney disease (CKD) or anemia were excluded.
- Chemotherapy course: defined from the first claim containing codes for chemotherapy drug or administration until the last claim with gap <90 days between two consecutive claims. Claims for hormonal treatment drug only were excluded.
- CKD, cancer types, & comorbidities: identified based on the presence of ICD-9 codes on 1+ Part A/IP/DHM/FFM/DA claims, or on 2+ Part A OP claims on 1+ Part A IP/SNF/HHA claims within one year before initiation.
- ESA and transfusion: Identified from Part A or Part B claims. Transfusion of 1+ RBC units on 1 day in the outpatient setting, during a hospital inpatient stay, or in an outpatient institutional setting was counted as one transfusion event.
- Study periods evaluating transfusion and ESA use from chemotherapy initiation to the earliest of death, change of payer status, 90 days post-chemotherapy initiation, or 12/31/2006, for the pre-NCD cohort and 12/31/2007, for the post-NCD cohort.
- ESA use was measured by the proportion of patients with any use (yes, no).
- Transfusion use was measured by the proportion of patients who received ≥1 transfusion as well as transfusion event rate (F transfusions per 100 patient-quarters).
- Changes in ESA use, transfusion use and event rate after the NCD were evaluated using Logistic and Poisson regression model with GEE to incorporate the pre-NCD and post-NCD correlation among patients in both cohorts (10% of each cohort).
- Comparisons were further adjusted for demographic factors and comorbidities.

Results

- The pre-NCD cohort had 1877 patients; the post-NCD cohort had 1897. Cancer types in each cohort were similar: 33% lung, 28% breast cancer, 26% colorectal, 22% lymphoma, 21% colorectal, and 20% breast.
- Pre-NCD cohort characteristics: 51.2% ≥75 years old, 38.9% women, 90% white, 61.8% HTN, 38.6% anemia. Other conditions ranged from 1.0% for liver disease to 27.5% for COPD. Post-NCD cohort had similar distribution.
- By cancer type, a few differences in characteristics achieved or approached statistical significance (figures 1, 2).
- Overall, courses receiving any ESA dropped from 35.0% pre-NCD to 15.2% post-NCD (P<0.0001; figure 3).
- Those receiving an ESA transfusion increased slightly, from 9.3% pre-NCD to 10.4% post-NCD (P=0.23), while transfusion event rates increased from 19.5 per 100 pt-quarters to 21.8 (P=0.31; figure 5).
- Patients with colorectal cancer had both the largest increase in ESA use, dropping from 32.8% to 10.3% (P<0.001), and the largest increase in transfusion use, increasing from 4.7% to 8.1% (P=0.054; figure 3).
- Adjusted results were similar (figures 4, 6, and 8).

Conclusions

- There was a modest, though not statistically significant, increase in transfusion after the July 2007 NCD. Impact of the NCD appeared to vary by cancer type, with the largest changes seen in colorectal cancer patients.
- A lower post-NCD hgb threshold for transfusion may have biased this comparison.
- Further studies need to assess differences in the hgb levels at which pts were transfused pre/post-NCD and whether there were differences in chemotherapy patterns (example: dose intensity) pre/post-NCD.

www.cdrgr.org

funded in part by a grant from Amgen, Inc.