Granulopoiesis-stimulating factors to prevent adverse effects in the treatment of malignant lymphoma.

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Study overview: Granulocyte-/granulocyte-macrophage-colony-stimulating factor (G-CSF/GM-CSF) prophylaxis is known to be effective at decreasing the incidence of chemotherapy-induced neutropenia (CIN) in patients with solid tumours and haematological malignancies. However, only a few trials include data on malignant lymphoma and the effects of G-CSF/GM-CSF on overall survival (OS) and freedom from treatment failure (FFTF) have not been studied in detail in this patient group. This systematic review presents the results of a meta-analysis of 13 randomised controlled clinical trials comprising a total of 2,607 patients with non-Hodgkin's lymphoma (NHL) or Hodgkin's disease (HD) receiving conventional chemotherapy with or without G-CSF/GM-CSF. Primary outcome variables were OS and FFTF; the study moreover aimed to determine the effectiveness of CSFs on preventing CIN, febrile neutropenia (FN), and infection.

Key findings: Neither G-CSF nor GM-CSF were found to improve OS, independently of lymphoma or growth factor type, patient age, antibiotic prophylaxis, and study size and design (hazard ratio [HR] 0.97). Further, no effect of CSF was observed on mortality during chemotherapy (relative risk [RR] 0.93), complete tumour response (RR 1.03), or FFTF (HR 1.11). Relative dose intensities tended to be higher in patients receiving G-CSF or GM-CSF. The risk of experiencing neutropenia was reduced by 33% (RR 0.67) and the risk of developing an infection decreased by 26% (RR 0.74), with either substance. G-CSF additionally reduced the risk of FN by 26% (RR 0.74) or 41% (RR 0.59), depending on the definition of FN used (febrile temperatures and absolute neutrophil count [ANC] < 1 x 10^9/L; or febrile temperatures and ANC < 0.5 x 10^9/L, respectively); no data were available for GM-CSF. Whilst some studies reported a shortened duration of CIN/FN in patients receiving growth factors, no conclusive evidence of the effect of G-CSF or GM-CSF on the duration of CIN or FN was observed, due to insufficient data.

Conclusions: This study confirms the beneficial effect of haematopoietic growth factors to significantly reduce the risk of CIN, FN, and infection in patients with lymphoma undergoing conventional chemotherapy. There was no evidence that G-CSF or GM-CSF improves OS or FFTF or affects mortality. The authors suggest that G-CSF or GM-CSF might favour haematopoietic recovery in time- and dose-intensified chemotherapy regimens, which were excluded from the present analysis, and recommend a further meta-analysis of relevant studies in this area.

http://www.mrw.interscience.wiley.com/cochrane/clsysrev/articles/CD003189/frame.html

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