

Granulocyte colony-stimulating factors for febrile neutropenia prophylaxis following chemotherapy: systematic review and meta-analysis

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This study reports a systematic review and meta-analysis of the effect of primary granulocyte colony-stimulating factor (G-CSF) prophylaxis on incidence of febrile neutropenia (FN) in adult cancer patients with solid tumours or lymphoma. Databases were searched for randomized controlled trials (RCTs) of pegfilgrastim, filgrastim, or lenograstim from 2006 till 2009 and studies published before 2006 were identified from two existing reviews by Kuderer et al. 2007 and Pinto et al. 2007. Studies were included if they assessed primary G-CSF prophylaxis administered 1-3 days after the completion of chemotherapy compared to a different G-CSF or no primary prophylaxis with G-CSF and if they reported FN incidence. In total, 25 studies met inclusion criteria. Cancer types, patient age, chemotherapy regimen, number of chemotherapy cycles, and cycle length differed between trials (high variation between studies). Primary prophylaxis with G-CSF significantly decreased the FN risk compared with no primary G-CSF prophylaxis (relative risk (RR) = 0.51 overall, RR = 0.30 for pegfilgrastim, RR = 0.57 for filgrastim, and RR = 0.62 for lenograstim). The RR of FN for pegfilgrastim compared to filgrastim was 0.66. G-CSF effectiveness did not differ between cancer types or in studies restricted to an elderly population. The systematic review and meta-analysis shows that G-CSF prophylaxis is effective in reducing the risk of FN. Results also suggest that pegfilgrastim is superior to filgrastim in reducing the risk of FN.