

The Feasibility and Safety of Anticoagulation during Chemotherapy Associated Thrombocytopenia for Thrombotic Complications of Malignancy

Polizzotto MN, Opat SS.

Department of Haematology, Alfred Hospital, Melbourne, Victoria, Australia

Blood. 2007;110(11). Abstract #1872.

INTRODUCTION

The optimal management of patients with hematological malignancies who require therapeutic anticoagulation for thromboembolic disease or prosthetic cardiac valves while receiving myelosuppressive chemotherapy has not been established. In particular, the role of anticoagulation during

chemotherapy-induced thrombocytopenia, with its attendant increased risk of bleeding, is undefined. We describe the feasibility and safety of a dynamic dosing strategy for continuous anticoagulation during chemotherapy-induced thrombocytopenia.

METHODS

Sixty patients with haematological malignancies who required anti-coagulation for venous thromboembolism or prosthetic cardiac valves while receiving chemotherapy were assessed. All were receiving myelosuppressive chemotherapy for a haematological malignancy (27 acute myeloid or promyelocytic leukaemia; 18 non-Hodgkin lymphoma; 9 plasma cell myeloma; 6 acute lymphoblastic leukaemia), and required anticoagulation for either proven deep venous thrombosis (catheter-related thrombosis in 32 patients; non-catheter associated deep venous thrombosis in 18) or pulmonary embolus (9) or prosthetic cardiac valves (1). Three patients underwent allogeneic stem cell transplantation and 7 autologous

stem cell transplantation. Median time from diagnosis of the thromboembolic disease to commencement chemotherapy was 10 days (range 0-40). Patients were anticoagulated with subcutaneous enoxaparin 1mg/kg body weight twice daily while the platelet count was $50 \times 10^9/L$ and 0.5 mg/kg once daily to maximum of 40 mg while it was $<50 \times 10^9/L$; platelets were transfused to maintain a count $20 \times 10^9/L$. Patients were clinically assessed daily for clinical evidence of bleeding or thrombosis, and underwent regular radiological screening for thrombotic complications. Plasma anti-Xa levels were assayed regularly only in patients with elevated serum creatinine (4 patients) or body mass index (1 patient).

RESULTS

Median number of days of chemotherapy-induced thrombocytopenia $<150 \times 10^9/L$ was 20 (range 1-84); $<50 \times 10^9/L$ 12 (0-41), and $<20 \times 10^9/L$ was 2 (0-30). Enoxaparin was delivered at full dose on 31% of thrombocytopenic days (median per patient 12 days, range 5-23), at reduced dose on 63% of days (median per patient 20 days, range 0-68), and withheld on 6% of days (median per patient 1 day, range 0-8). Of days where enoxaparin was withheld, 45% were for procedures; 20% bleeding; and 35% other reasons, including refractory thrombocytopenia $<20 \times 10^9/L$. Serious bleeding complications during anticoagulation were uncommon.

Three patients (5%) experienced major bleeding episodes: two developed gastrointestinal bleeding requiring endoscopic intervention and transfusion while receiving reduced dose anticoagulation with platelet counts of $20 \text{ to } 50 \times 10^9/L$; one developed bleeding requiring surgical intervention at an existing wound site when the platelet count was $19 \times 10^9/L$, but had not received enoxaparin that day. Minor bleeding, including bruising at the sites of injections and menorrhagia was common. No further thromboembolic complications were identified in any patient.

CONCLUSION

This study suggests that dynamically dosed anticoagulation is safe and feasible during thrombocytopenia following chemotherapy, including conditioning for stem cell transplantation, in patients who are carefully selected and closely monitored. This strategy was not associated with excessive bleeding and appeared effective in preventing further thromboembolic complications.