Title	Changes in haematopoiesis in bone marrows primed with haematopoietic growth factors before allogeneic bone marrow transplantation: an interim analysis
Author(s)	Kwong, YL; Lie, AKW; Chan, JCK; Liang, RHS
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S-H-1

Arsenic trioxide and idarubicin induced remissions in relapsed acute promyelocytic leukaemia : clinicopathological and molecular features

Y.L. Kwong, Y.W. Au, C.S. Chim, A. Pang, C. Suen, R. Liang, Department of Medicine, University of Hong Kong.

Introduction. Arsenic trioxide (As_2O_3) effectively induces remissions in relapsed acute promyelocytic leukaemia (APL), but the safety of its long term administration is unknown. The anthracycline idarubicin is highly active alone or in combination chemotherapy for the treatment of APL. To minimise arsenic exposure and based on the high sensitivity of APL cells to anthracyclines, we conducted a prospective study to evaluate induction with As_2O_3 followed by consolidation with idarubicin in the treatment of APL in relapse. Materials and methods. Eight patients were treated with As_2O_3 at a daily dose of 10 mg until remission, followed by three monthly courses of idarubicin, at 6 mg/m^2/day for five days in the first course, and 6 mg/m^2/day for 2 days in the subsequent two courses. Results. All patients achieved morphological but not molecular remission after As_2O_3 treatment. During As_2O_3 therapy, an increase in white cell count peaking at a median of 17 days occurred in all the patients, implying a differentiation effect. Continuous flow cytometric analysis of apoptosis, with mitochondrial APO2.7 antigen expression and the sub-G1 cell fraction on DNA histogram as markers, showed concomitant maturation and induction of apoptosis of APL cells *in vivo*. With both qualitative and real-time quantitative polymerase chain reaction for the fusion transcript *PML/RARA*, all patients were shown to attain molecular remission after subsequent idarubicin treatment. With a median follow up of 12 months, seven of eight patients have remained in complete remission. One patient died from intracranial extramedullary relapse after achieving marrow molecular remission. Conclusion. We conclude that As_2O_3 induction followed by idarubicin consolidation is an effective therapy for APL in relapse. This regimen avoids the possible long term toxicities of As_2O_3 and mutagenicity of combination chemotherapy, a strategy that might be suitable for this potentially curable leukaemia.

S-H-2

Changes in haematopoiesis in bone marrows primed with haematopoietic growth factors before allogeneic bone marrow transplantation : an interim analysis.

Y.L. Kwong, A.K.W. Lie, J. Chan, R. Liang, Department of Medicine, Queen Mary Hospital, Hong Kong

Introduction. Haematopoietic growth factors are used to mobilise circulating haematopoietic stem cells for transplantation. The role of these factors in increasing the yield of haematopoietic stem cells in the marrow is investigated. Materials and methods. Normal donors were randomised into three groups to receive no treatment, and GM-CSF or G-CSF treatment (10:g/Kg/day from day –4 to day –1 before marrow harvest). At marrow harvest, parameters measured include the volume of cells, total nucleated cell count, total CFU-GM, and flow cytometric analysis of CD34 cell fractions ($CD34^+CD38^-$, $CD34^+CD71^-$, $CD34^+CD90^+$, $CD34^+CD117^+$), B cells ($CD19^+$), T-helper cells ($CD4^+$), T-suppressor cells ($CD8^+$), natural killer cells ($CD3^-CD56^+$), and cells in S and G2 phases as defined by DNA histogram analysis. Parameters were expressed as per litre of marrow harvested. Results. At interim analysis, the G-CSF treated group showed a trend towards having a higher yield of CFU-GM. However, all of the other measured parameters were not significantly different in the three treatment groups. Conclusion. At interim analysis, except a trend towards a higher yield of CFU-GM in the G-CSF treated group, there does not seem to be a difference in all the other biological parameters measured. It will be important to see how this may be ultimately related to treatment outcome, including the speed of engraftment and the frequency of graft versus host disease.