

## **Cases of secondary acute myeloid leukemia and myelodysplastic syndrome in patients with multiple myeloma**

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### **Abstract**

Standard chemotherapy using alkylating agents both during the induction of remission and its maintenance therapy had been applied for 30 years in treatment of multiple myeloma (MM). But after a long treatment utilizing alkylating preparations the risk of secondary leukemias becomes unjustified.

We analysed 329 MM cases during the years 1994 to 2008. The males numbered 128 (39%) and the females 201 (61%). The median overall survival (OS) rate for all patients was 31 months. Secondary leukemias were diagnosed in 5 MM patients and were diagnosed as follows: AML (M2 subtype according to FAB) in 2 patients, refractory anemia with excess blasts (RAEB-1 according to WHO) in 2 patients and refractory anemia with excess blasts (RAEB-2 according to WHO) in 1 patient. The median period before a second tumor appeared was 7.3 years. The actuary risk of secondary leukemia after 5 years of MM was 1.3%. The general occurrence of secondary AML and MDS equaled 1.7%. Low occurrence of this phenomenon is due to the fact that the mean period for development of a secondary tumor is 3 times greater than the median life expectancy for MM patients. The median OS rate after the diagnosis of a second leukemia was 2 months.

Thus, secondary AML and MDS are rare complications of chemotherapy in MM patients. But if they appear and develop, it leads to a rapid reduction of life expectancy for the patients because of resistance to the therapy carried out. Patients with smoldering myeloma and a high life expectancy of 5 to 10 years die of a qualitatively new leukemia as a result of a long chemotherapy using alkylating agents. That is why the risk of a second tumor cannot be considered as justified.

**Keywords:** multiple myeloma, acute myeloid leukemia, myelodysplastic syndrome