Reply to "Acute leukemia arising after radioiodine treatment for thyroid cancer" Haematologica 2012;97(8):e28-29.

We read with great interest the above-mentioned letter[1] in which the authors referred to our manuscript "Therapy-related myeloid neoplasms following treatment with radiopiodine".[2] They reported on additional cases of acute leukemias arising after radioiodine therapy. Their data on 10 patients generally confirm the results we recently published in this journal and support the idea that radioiodine, although considered a rather mild intervention, can result in the devastating long-term consequences of secondary MDS or AML. Due to our primary research interest in the field of MDS and AML we only focused our analysis on these two entities within the context of radioiodine-induced hematologic neoplasms. The findings of Gilabert *et al.* regarding other leukemia subtypes extend this view.

The authors stated that they observed a bimodal distribution with regard to the latency period between radioiodine treatment and secondary leukemias with one peak at 1-3 years and a second peak at 7-10 years. The median latency period in our cohort was 79 months, ranging from 6 months to 440 months. However, in contrast to Gilabert *et al.*, we observed a continuous distribution rather than a distribution with two distinct peaks. Seventeen percent of our patients developed leukemia within the first three years, 33% between the 4th and the 6th years, while the other 50% developed myeloid neoplasms after seven years or more, in agreement with the usual time interval of tMDS/tAML following external radiation or alkylating agents.

As suggested by the letter of Gilabert *et al.*, we divided our patients into three subgroups according to the latency periods mentioned above and found no difference with regard to frequencies of MDS and AML subtypes, the number of bone marrow blasts, the number of karyotype abnormalities and the cytogenetic risk profile according to IPSS and ELN between these groups.

Furthermore, our data with regard to gender distribution are not in line with their results suggesting a female predominance. However, this is probably related to the rather small numbers of patients in both reports. We would suggest that gender distribution can only be assessed in series of larger numbers of patients, with well designed data collection and analysis as part of prospective surveys.

Taken together, we agree with Gilabert *et al.* that clear information to the patients about this low but devastating risk is justified and that a thorough follow up in patients receiving radioiodine treatment is recommended.

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