A new case of t(5;14)(q31;q32) in a pediatric acute lymphoblastic leukemia presenting with hypereosinophilia

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Clinics

Age and sex
11 years old male patient.

Previous history
Preleukemia. The patient presented with a chronic eosinophilic leukemia 3 months before developing ALL. No previous malignancy. No inborn condition of note

Organomegaly
Hepatomegaly (4 cm from below costal rib), splenomegaly (3 cm from below costal rib), no enlarged lymph nodes, no central nervous system involvement.

Blood

WBC : 48 with 62% of eosinophils X 10⁹/l
HB : 7.0g/dl
Platelets : 79 X 10⁹/l
Blasts : 15%
Bone marrow : Normal cellularity was replaced by 60% of lymphoblasts FAB L1 morphology%.

Cyto-Pathology Classification

Immunophenotype
Pre-B ALL (EGIL classification B III). The blasts expressed CD45, CD19, CD10, CD34, HLA-DR, cCD79a, cCD22, Tdt and cytoplasmic micro chain, partial CD20 and CD33 and were negative for CD2, CD7, CD13, CD15, CD117 and CD3.

Diagnosis
Acute lymphoblastic leukemia following a chronic eosinophilic leukemia.

Survival

Date of diagnosis: 03-2008
Treatment: Chemotherapy for ALL (12-ALLIC 02 protocol)
Complete remission was obtained.
Treatment related death : no
Relapse : yes
Phenotype at relapse
During continuation phase hypereosinophilia was observed in peripheral blood, but low percentage of lymphoblasts was detected during 2-3 weeks before relapse. After this finding, the patient presented CNS infiltration by eosinophils (70% of WBC detected in CSF). He presented a bone marrow infiltration by dysplastic eosinophils and less than 5% of lymphoblasts after 18 months from achieving CR and a hematological relapse was diagnosed.

Status: Death 06-2010
Survival: 21 months

Karyotype

Sample: Bone marrow
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**Culture time:** 24h  
**Banding:** G banding  

**Results**  
Karyotype at time of diagnosis of ALL:  
46,XY,t(5;14)(q31;q32)[4]/46,XY[12]  

**Karyotype at Relapse**  
46,XY,t(3;8)(p21;q24),t(5;14)(q31;q32)[2]/46,XY[18]  

**Other Molecular Studies**  
Technics:  
RT-PCR non evaluable, due to control gene non amplifiable.

5 der(5) 14 der(14)  

t(5;14)(q31;q32)  

Partial GTG banded karyotype showing t(5;14)(q31;q32).

**Comments**  
To our knowledge nine cases (8M/1F) of ALL with eosinophilia and t(5;14)(q31;q32) have been reported in the literature. Five of them were described in childhood ALL. The prognosis of t(5;14)(q31;q32) seems to be very poor. Our patient relapsed and died 21 months after diagnoses.