

Characteristics of adult patients treated for acute myeloid leukemia with inv 16 in Casablanca (Morocco)



Caractéristiques des patients adultes traités pour leucémies aiguës myéloïdes avec inv 16 à Casablanca (Maroc)

The objective of this study is to describe the clinical, biological and prognostic profile of patients treated for AML with inv 16 in the clinic of hematology and pediatric oncology of Casablanca.

Patients and methods

A longitudinal descriptive study with retrospectively collected data over a period of 13 years, between January 1st, 2003 and December 31st, 2015, was performed at our unit.

Adult patients diagnosed with AML inv 16 or t (16; 16) were included. The diagnosis of AML was selected according to WHO 2008 criteria, excluding immunophenotyping which had been performed only in patients with negative cytological myeloperoxidase (MPO). The conventional cytogenetic study was done in the bands R, G and H on medullary sampling.

Two treatment periods were considered. From 2003 to 2010, patients were treated according to the AML-MA 2003 protocol: two daunorubicin-based induction cycles and aracytin. A consolidation based on aracytin and asparaginase. From 2011 to 2015 the patients were treated according to the AML-MA 2011 protocol: two cycles of daunorubicin induction and aracytin in addition of etoposide for the second induction, followed by three consolidations with aracytin associated with daunorubicin for the first and the third consolidation and asparaginase for the second consolidation. The forms with hyperleukocytosis

Introduction

The acute myeloid leukemia (AML) with inversion 16 (inv 16) or the variation t (16; 16) (p13; q22) is distinct of leukemia, an AML with a favorable prognosis [1]. The inv 16 or variation t (16; 16) (p13; q22) results from the fusion of two genes, *CBFB* to 16q22 and the 16p13 to *MYH11* gene which leads to the production of the chimeric protein CBFβ-SMMHC. The biological effect is the interruption of the process of blast differentiation [2-4].

The AML inv 16 represents 2 to 6% of the AML [5]. In 2012, 3.5% was in Tunisia [6]. In Morocco, acute myeloid leukemia generally and especially AML with inv 16 have been managed for several years, but due to lack of data, the characteristics of this AML are not well known.

TABLE I
Clinical and evolutionary characteristics of AML inv 16

	Number	Percentage (%)
Number/incidence	32/1371	(2.3)
Median age (year)	32.5	[18; 60]
Sex ratio	1/2	
Chloromas	0	0
Median WBC (G/L)	53.3	[1.4; 247]
FAB M4eo/M4/M2/M1/M5	5/12/7/6/2	15.6/37.5/21.9/18.8/6.2
Immunophenotyping	21	65.6
Inversion 16 isolated	21	65.6
Inversion 16 + additional anomalies	11	34.4
Waiting time diagnosis treatment (day)	17.4	[4; 44]
IndI/IndII/Consol/ConsolII/ConsolIII	32/24/18/16/13	100/75/56.3/50/40.6
CR after 2 inductions	21/24	87.5
Relapse	7	21.9
Death during inductions	9	28.1
OS inv16 isolated/inv16 + anomalies/all		54.5/57.3/58.2
EFS inv16 isolated/inv16 + anomalies/all		66.7/55.2/58.9

IndI/IndII/Consol/ConsolII/ConsolIII: InductionI/InductionII/ConsolidationI/ConsolidationII/ConsolidationIII; CR: complete remission.

(≥ 50 G/L) were treated with hydroxyurea for 4 days before the first induction. All patients received central nervous system prophylaxis at the beginning of each course. Those with central nervous system disease received additional intrathecal injection. Supportive care (transfusions, antibiotics) was administered when needed.

Complete remission (CR) was defined as normal clinical examination, no evidence of chloroma, hemogram with neutrophils ≥ 1.0 G/L, platelets ≥ 75 G/L without transfusion and

at the end of induction II a rich myelogram with normal hematopoietic cells with less than 5% blasts.

Results

Thirty-two patients were included in the 1371 AML patients. The AML inv 16 represents 2.3% of the AML. The median of age was 32.5 years (18–60 years) and sex ratio M/F was 0.5. The median number of white blood cells at diagnosis time was 53.3 G/L (1.4–247 G/L) (table 1). Eleven (34.4%) additional cytogenetic

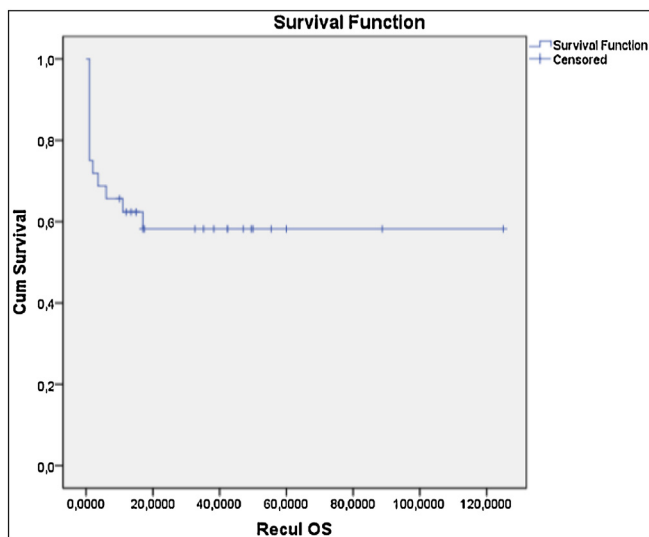


FIGURE 1
The overall survival curve of patients with AML inv 16 followed in Casablanca, on the abscissa the number of months and on the ordinate the percentage. At 5 years, an overall survival of 58.9%

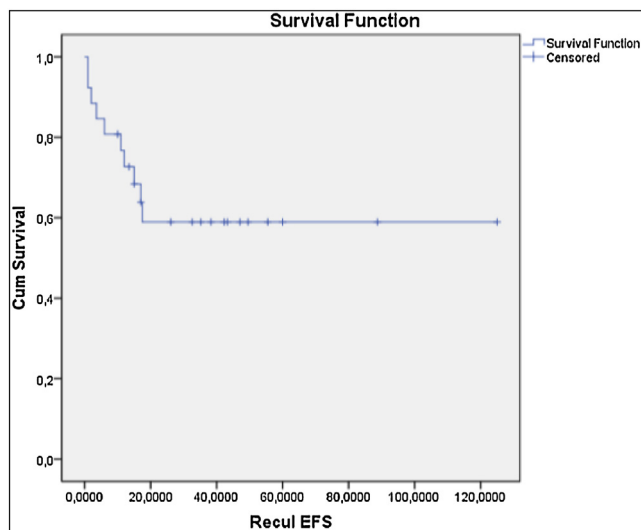


FIGURE 2
The follow-up survival curve of patients with AML inv 16 followed in Casablanca, on the abscissa the number of months and on the ordinate the percentage. At 5 years, a disease-free survival of 58.2%

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