Prognostic Factors in Childhood B-cell ALL

Timothy C Beer, Thomas Jefferson University
Prognostic Factors in Childhood B Acute Lymphblastic Leukemia (ALL)
Timothy Beer

Age

WORST
< 1 year old
> 10 years old
1-9 years old
BEST

Race and Ethnicity

WORST
Black
Hispanic
BEST
White
Asian

WBC at Diagnosis

WORST
WBC > 50,000/µl
BEST
WBC < 10,000/µl

CSF at diagnosis

WORST
(+ ) blasts, ≥ 5 WBC/µL
BEST
(+ ) blasts, ≤ 5 WBC/µL
Ø blasts, ≤ 5 WBC/µL

Cytogenetics

WORST

BRC ABL

E2A-PBX1

Normal kayotype
del(6q)
9p rearrangement
12p rearrangement
BEST

t(4;11) - MLL
Hypodiploid (< 44 chr.)
t(1;19) - E2A-PBX1

Hyperdiploid (> 50 chr.)

t(12;21) - TEL-AML1
Trisomy 4, 10, 17
del(6q)
9p rearrangement
12p rearrangement

Minimal Residual Disease (MRD)

WORST
≥ 1% after induction
BEST
≥ .01% after induction
< .01% after induction
< .01% by day 14

Tyrosine kinase inhibitors such as imatinib may have improved the prognosis for t(9;22) ALL

With intensified chemotherapy, t(1;19) ALL can have outcomes similar to cases with more favorable cytogenetics

del(6q) and rearrangements of 9p and 12p are common abnormalities in ALL, but have no known prognostic significance