Young Fellow and Best Abstract Presentations

Title: Impact of Philadelphia Chromosome/BCR-ABL1 fusion gene on the outcomes of B-cell Acute Lymphoblastic Leukemia in the Tyrosine Kinase Inhibitor era - A retrospective multicenter analysis

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List of abbreviations:

B-ALL	B-cell Acute lymphoblastic Leukaemia
Ph	Philadelphia Chromosome
Ph+	Philadelphia Chromosome positive
Ph-	Philadelphia Chromosome negative
TKI	Tyrosine kinase Inhibitor
AlloHSCT	Allogeneic haematopoietic stem cell transplantation
OS	Overall survival
PFS	Progression-free survival
CR	Complete remission
NR	Non-remission
RR	Relapse Rate
TTR	Time to relapse

Background and objectives: In adults with B-cell Acute Lymphoblastic Leukaemia (B-ALL), the most commonly found cytogenetic abnormality is the Philadelphia Chromosome (Ph); which is a well-known adverse prognostic factor(1). However, the outcomes of Philadelphia Chromosome positive (Ph+) B-ALL patients have improved significantly since the incorporation of BCR-ABL tyrosine kinase inhibitors (TKI) into first-line treatment (2-5) . The aim of this study is to compare the outcomes of Ph+ and Philadelphia Chromosome negative (Ph-) B-ALL patients after the widespread addition of TKI into standard therapy in Hong Kong local hospitals.

Methods: Adult B-ALL patients diagnosed between 1st January 2011 to 31st Dec 2018 in three Hong Kong centres (Queen Mary Hospital, Queen Elizabeth Hospital and Pamela Youde Nethersole Eastern Hospital) were recruited into this retrospective study. The primary outcomes of interest were overall survival (OS) , progression free survival (PFS) and relapse rate (RR).

Results: A total of 91 patients, age between 18-95 years old, were recruited into this study. The 2-year OS and PFS were 60.3% and 45.7%, respectively. The median OS of Ph- group was 45.6 months and median OS of Ph+ group was not reached, with a median follow-up time of 25 months. There were no statistically significant differences in OS (unadjusted hazard ratio, HR =

0.76; 95% confidence interval, CI: 0.41 – 1.41; log-rank test P = 0.384), PFS (unadjusted HR = 0.70; 95% CI: 0.41 -1.22; log-rank test P = 0.209) and RR (57.4% vs 46.0% in Ph- and Ph+ respectively; relative risk = 0.80; 95% CI: 0.52 – 1.23; P = 0.295), with regards to Ph status. On multivariate analysis, presence of Ph was not an independent predictive factor of OS or PFS. Older age at diagnosis and presence of additional high risk cytogenetics were associated with inferior survival outcomes.

Conclusion: In this local study, Ph status was not predictive of inferior survival outcomes in adult B-ALL patients after the widespread usage of TKI . Similar findings were also observed in overseas cancer registries and reported in literature.

Reference:

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