

## **FAKTOR PREDIKTOR KEGAGALAN FASE INDUKSI PADA ANAK DENGAN LEUKEMIA LIMFOBLASTIK AKUT**

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### **ABSTRAK**

**Latar belakang** : Sebagian besar pasien leukemia limfoblastik akut (LLA) mengalami keberhasilan terapi (remisi) setelah menjalani fase induksi dalam protokol pengobatan, namun sebagian pasien mengalami kegagalan dalam fase induksi.

**Tujuan** : Mengetahui apakah faktor usia, jenis kelamin, leukosit awal, persentase sel blast pada pemeriksaan *bone marrow puncture* dan morfologi darah tepi saat awal terdiagnosis, respon prednison, hasil imunofenotip, status gizi, *absolute neutrophil count* (ANC), *absolute lymphocyte count* (ALC), dan jenis protokol pengobatan merupakan faktor prediktor terjadinya kegagalan fase induksi dalam pengobatan LLA.

**Metode** : Studi kohort retrospektif dengan melibatkan 260 pasien usia 0- 18 tahun dan terdiagnosis yang menjalani pengobatan LLA di RSUP Dr. Sardjito Yogyakarta pada periode 1 Juli 2013- 1 Januari 2019. Analisis bivariat faktor prediktor menggunakan *chi-square* dan *fisher exact test* sedangkan analisis multivariat menggunakan regresi logistik. Hubungan antar variabel dinyatakan dengan *odds ratio* dan interval kepercayaan 95% dengan tingkat kemaknaan statistik  $p < 0,05$ . Dilakukan pula subgrup analisis berdasarkan jenis protokol terapi.

**Hasil** : Ratio perbandingan laki laki : perempuan adalah 1.16: 1.0. Rata- rata berusia 5,8 tahun dan sebanyak 82,7% dalam rentang usia 1-10 tahun. Sebagian besar pasien mengalami remisi total setelah fase induksi yaitu sebesar 79,2%, sedangkan remisi parsial sebanyak 18,1%, dan tidak remisi 7,0%. Remisi parsial dan tidak remisi kemudian dikelompokkan sebagai gagal induksi. Analisis multivariat regresi logistik menunjukkan jenis protokol pengobatan sebagai faktor prediktor kegagalan fase induksi ( $p = 0,041$  OR 1,97 CI 95% 1,028 – 3,800). Sedangkan analisis subgrup berdasarkan jenis protokol pengobatan menunjukkan tidak ada variabel prediktor yang bermakna secara signifikan terhadap kegagalan fase induksi.

**Kesimpulan** : Jenis protokol pengobatan merupakan faktor prediktor kegagalan fase induksi pada anak dengan LLA

**Kata kunci** : leukemia limfoblastik akut, faktor prediktor, kegagalan fase induksi

## **PREDICTIVE FACTORS OF INDUCTION FAILURE IN CHILDREN WITH ACUTE LYMPHOBLASTIC LEUKEMIA**

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### **ABSTRACT**

**Background :** Most of patients with acute lymphoblastic leukemia (ALL) experienced remission after induction phase, however there are some number of patients who had induction failure.

**Objective :** This study aimed to determine factors such as age, sex, leukocyte count, blast percentage on bone marrow puncture and peripheral blood smear at time of diagnosis, prednisone response, immunofenotyping result, nutritional status, absolute neutrophil count (ANC), absolute lymphocyte count (ALC), and type of protocol as predictive factors for induction failure in children with ALL.

**Methods :** We conducted a retrospective cohort study involved 260 children age 0-18 years old who were diagnosed with ALL and treated at Dr. Sardjito General Hospital Yogyakarta from July 1<sup>st</sup> 2013 to January 1<sup>st</sup> 2019. Bivariate analysis of predictor factors were performed through chi-square and fisher exact test while multivariate analysis used logistic regression test. The relationship between variables were presented as odds ratio (OR), confidence intervals 95%, and statistical significance levels  $p < 0.05$ . Subgroup analysis based on type of treatment protocol was also performed.

**Result :** The ratio of female : male was 1.16: 1.0. The mean age of subjects was 5,8 years old and 82,7% were classified as 1-10 years old of age group. Most of the patients (79,2%) had total remission, 18,1% partial remission, and 7,0% failed to achieve remission after induction phase. Partial remission and failed to achieve remission are classified as induction failure. Multivariate logistic regression analysis showed that type of treatment protocol is a predictive factor for induction failure in children with ALL ( $p = 0,041$  OR 1,97 CI 95% 1,028 – 3,800). Subgroup analysis based on the type of treatment protocol showed no significant predictor variable contributes to the failure of induction phase.

**Conclusion :** Type of protocol treatment is a predictive factor for induction failure in children with ALL.

**Keywords :** acute lymphoblastic leukemia, predictor factor, induction failure