**Table S1 Patient characteristics of haplo-SCT and chemotherapy-only groups**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Chemo-Only (n=55)** | **Haplo (n=59)** | **P**  |
| **Mean age n (range), years** | **27 (18-39)** | **25 (18-39)** | **0.210** |
| **18-29 years n(%)** | **39 (70.9)** | **46 (79.6)** |
| **30-39 years** | **16 (29.1)** | **13 (20.4)** |
| **Sex n(%)** |  |  | **0.247** |
| **Male** | **33 (60.0)** | **42 (71.2)** |
| **Female** | **22 (40.0)** | **17 (28.8)** |
| **Mean WBC n (range) \*109/L** | **8.1 (0.7-54)** | **8.0 (0.1-79)** | **0.412** |
| **<10 n(%)** | **32 (58.2)** | **37 (62.7)** |
| **10-29** | **13 (23.6)** | **12 (20.3)** |
| **>30** | **10 (18.2)** | **10 (17.0)** |
| **Diagnosis n(%)** |  |  | **0.715** |
| **B-ALL** | **42 (82.5)** | **41 (63.3)** |
| **T-ALL** | **13(17.5)** | **18 (36.7)** |
| **IKZF-1 n(%) in B-ALL** |  |  | **0.933** |
| **Positive** | **9 (21.4)** | **10 (24.4)** |
| **Negative** | **33 (78.6)** | **31 (75.6)** |
| **Induction to CR n(%)** |  |  |  |
| **CODP** | **10 (18.2)** | **7 (11.9)** | **0.346** |
| **CODP-L** | **45 (81.8)** | **52 (88.1)** |
| **Time to CR days(range)** | **32 (14-76)** | **34 (14-97)** | **0.113** |
| **One Course to CR1 n(%)** | **50 (90.9)** | **52(88.1)** | **0.764** |
| **MRD positive n (%)** |  |  |  |
| **Post Induction** | **21(38.2)** | **35 (59.3)** | **0.025\*** |
| **Post Con-1** | **21 (38.2)** | **24 (40.7)** | **0.941** |
| **Post Con-2** | **6 (11.5)** | **11 (18.6)** | **0.170** |
| **One Course to CR1 and** **Negative Con-1 MRD n(%)** | **29****(52.7)** | **30(50.8)** | **0.854** |
| **Centers n(%)** |  |  | **0.011\*** |
| **Peking University** | **34 (61.8)** | **49 (83.1)** |
| **Others** | **21 (38.2)** | **10 (16.9)** |
| **Events n(%)** |  |  |  |
| **Relapse** | **33(60.0)** | **8 (13.6)** |  |
| **NRM**  | **1 (1.8)** | **7 (11.9)** |  |

**Data are number of patients unless otherwise note**

**Table S2 Patient characteristics of the haplo-SCT and chemotherapy groups in landmark analysis**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Chemotherapy** **at landmark****(n=50)** | **Haplo-SCT** **at Landmark** **(n=49)** | **P**  |
| **Mean age n (range), years** | **28 (18-39)** | **22 (18-39)** | **0.052** |
| **18-29 years n(%)** | **34 (68.0)** | **37 (75.5)** |
| **30-39 years** | **16 (32.0)** | **12 (24.5)** |
| **Sex n(%)** |  |  | **0.331** |
| **Male** | **30 (60.0)** | **44 (69.4)** |
| **Female** | **20 (40.0)** | **15 (30.6)** |
| **Mean WBC n (range) \*109/L** | **7.5 (0.1-54.2)** | **8 (0.6-79)** | **0.864** |
| **<10 n(%)** | **29 (58.0)** | **31 (63.3)** |
| **10-29** | **18 (36.0)** | **13 (26.5)** |
| **>30** | **3 (6.0)** | **5 (10.2)** |
| **Diagnosis n(%)** |  |  | **0.952** |
| **B-ALL** | **37 (74.0)** | **36 (73.5)** |
| **T-ALL** | **13 (26.0)** | **13(26.5)** |
| **IKZF-1 n(%) in B-ALL** |  |  | **0.965** |
| **Positive** | **8 (21.6)** | **8 (22.2)** |
| **Negative** | **29 (78.4)** | **28 (77.8)** |
| **Induction to CR n(%)** |  |  |  |
| **CODP** | **8 (16.0)** | **6(12.2)** | **0.594** |
| **CODP-L** | **42 (84.0)** | **43 (87.8)** |
| **Time to CR days(range)** | **32 (14-86)** | **34 (10-97)** | **0.270** |
| **MRD positive n (%)** |  |  |  |
| **Post Induction** | **20 (40.0)** | **29 (59.2)** | **0.058** |
| **Post Con-1** | **15 (30.0)** | **14 (28.6)** | **0.877** |
| **Post Con-2** | **3 (6.0)** | **10 (20.4)** | **0.035\*** |
| **Centers n(%)** |  |  | **0.056** |
| **Peking University** | **31 (55.0)** | **39 (79.6)** |
| **Others** | **19 (45.0)** | **10(20.4)** |
| **Events n(%)** |  |  |  |
| **Relapse** | **20(40.0)** | **7 (14.3)** |  |
| **NRM**  | **1 (2.0)#** | **4 (8.2)** |  |

**\* Statistical Significance**

**#  NRM before SCT**

**Data are number of patients unless otherwise note**

**Table S3**  **PH test in time dependent COX model**

|  |  |
| --- | --- |
|  | **T\_COV** |
| **CR to HSCT time** | **0.0350 \*** |
| **Consolidation Treatment** | **0.0500 \*** |
| **Center** | **0.2213**  |
| **SEX** | **0.6089**  |
| **Age** | **0.9455**  |
| **Diagnosis** | **0.7302**  |
| **WBC** | **0.6179**  |
| **IKZF1** | **0.9056**  |
| **Induction Regimen** | **0.5539**  |
| **Induction Days** | **0.8422**  |
| **Induction MRD** | **0.8856**  |
| **Con1 MRD** | **0.1387**  |
| **Con2 MRD** | **0.1137**  |

**\* Statistical Significance**

**Table S4** **Univariate analysis of time dependent analysis**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Parameter** |  | **LFS** |  |  | **OS** |  |  | **CIR** |  |  | **NRM** |  |
|  | **HR** | **95%** | **p** | **HR** | **95%** | **p** | **HR** | **0.950**  | **p** | **HR** | **95%** | **p** |
| **T\_COV****Haplo vs Chemo** | **0.434**  | **0.228-0.827** | **0.011 \*** | **0.314**  | **0.146-0.676** | **0.003\***  | **0.249**  | **0.111-0.560** | **0.001\***  | **6.570**  | **0.802-53.802** | **0.079**  |
| **Center****Other vs Peking** |  |  | **0.654**  |  |  | **0.507**  |  |  | **0.530**  |  |  | **0.835**  |
| **Sex** **Female vs Male** |  |  | **0.769**  |  |  | **0.350**  |  |  | **0.594**  |  |  | **0.557**  |
| **Age**  |  |  | **0.927**  |  |  | **0.973**  |  |  | **0.689**  |  |  | **0.652**  |
| **Diagnosis T vs B** |  |  | **0.131**  | **2.330**  | **1.156-4.696** | **0.018 \*** |  |  | **0.934**  | **10.591**  | **2.123-52.838** | **0.004\***  |
| **WBC*$*** |  |  | **0.107**  |  |  | **0.113**  |  |  | **0.577**  | **1.561**  | **1.122-2.172** | **0.008 \*** |
| **IKZF + vs -** |  |  | **0.892**  |  |  | **0.976**  |  |  | **0.658**  |  |  | **0.411**  |
| **Induction L + vs -** |  |  | **0.418**  |  |  | **0.277**  |  |  | **0.488**  |  |  | **0.883**  |
| **CR time**  |  |  | **0.956**  |  |  | **0.837**  |  |  | **0.545**  |  |  | **0.137**  |
| **CR Course 2 vs. 1** |  |  | **0.448** |  |  | **0.460** |  |  | **0.718** |  |  | **0.200** |
| **MRD post induction** |  |  | **0.847**  |  |  | **0.834**  |  |  | **0.265**  |  |  | **0.376**  |
| **MRD post Con-1** | **1.885**  | **1.076-3.303** | **0.027\***  |  |  | **0.295**  | **2.177**  | **1.174-4.035** | **0.014\***  |  |  | **0.417**  |
| **MRD post Con-2** |  |  | **0.112**  |  |  | **0.933**  | **2.034**  | **0.996-4.153** | **0.051**  |  |  | **0.445**  |

 ***\* Statistical Significance $ Linear with estimates of HRs for ten years difference***

**CIR:** treatment option (haplo-SCT vs chemotherapy; HR 0.249, 95% CI 0.111-0.560, P=0.001) and Con1 FCM MRD (+ vs -; HR 2.177, 95% CI 1.174-4.035, P=0.014) were risk factors that affected CIR, whereas the other variables, such as age, sex, WBC count at diagnosis, T cell or B cell, induction regimens, induction time and enrolled centers, did not influence the risk of CIR.

**NRM:** diagnosis (T vs B; HR 10.591, 95% CI 2.123-52.838, P=0.004) and WBC count at diagnosis (linear with estimates of HRs for 10\*109/L. [HR] 1.561, 95% CI 1.122-2.172, P=0.008) affected NRM.

**LFS:** treatment option (haplo-SCT vs chemotherapy; [HR] 0.434, 95% CI 0.228-0.827; P=0.011) and Con-1 MRD status (+ vs -, [HR] 1.885, 95% CI 1.076-3.303, P=0.027) were potential risk factors that affected LFS. Other variables did not influence LFS.

**OS:** treatment option (haplo-SCT vs chemotherapy; HR 0.314, 95% CI 0.146-0.676, P=0.003) and diagnosis (T vs B; HR 2.330, 95% CI 1.156-4.696, P=0.018) affected OS; however, the other variables did not influence OS.

**Table S5. Multivariate analyses of CIR, NRM, LFS and OS**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Parameter** |  | **Crude** |  |  |  | **PS-Adjusted** |  |
| **HR** | **95%CI** | ***P*** |  | **HR** | **95%CI** | ***P*** |
| **CIR** |  |  |  |  |  |  |  |
| **Haplo-SCT vs Chemo** | **0.238** | **0.105-0.537** | **<0.001\*** |  | **0.195** | **0.076-0.499** | **0.001\*** |
| **Con-1 MRD + vs -** | **2.292**  | **1.235-4.255** | **0.009\*** |  | **3.609** | **1.562-8.340** | **0.006\*** |
| **NRM** |  |  |  |  |  |  |  |
| **Diagnosis T vs B** | **9.124** | **1.820-45.74** | **0.017\*** |  | **1.372** | **0.123-15.299** | **0.797** |
| **LFS** |  |  |  |  |  |  |  |
| **Haplo-SCT vs Chemo** | **0.382** | **0.199-0.735** | **0.004\*** |  | **0.297** | **0.131-0.675** | **0.003\*** |
| **Con-1 MRD + vs -** | **2.033** | **1.155-3.576** | **0.014\*** |  | **2.825** | **1.298-6.152** | **0.009\*** |
| **OS** |  |  |  |  |  |  |  |
| **Haplo-SCT vs Chemo** | **0.307** | **0.141-0.668** | **0.003 \*** |  | **0.346** | **0.140-0.853** | **0.011\*** |
| **Diagnosis T vs B** | **2.701** | **1.332-1.332** | **0.006 \*** |  | **2.564** | **1.361-4.823** | **0.014\*** |

***\* Statistical Significance***