

Outcomes of reduced intensity and myeloablative allogeneic hematopoietic cell transplantation (alloHCT) with post transplantation cyclophosphamide (PTCy) for adolescent and young adult (AYA) patients with myelodysplastic syndrome (MDS) or acute leukemia at Johns Hopkins Hospital

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Background

- AlloHCT with PTCy has been used to cure hematologic malignancies in patients of all ages
- In adults with MDS or acute leukemia, reduced intensity conditioning (RIC) or non-myeloablative (NMA) HCT regimens lead to increased overall survival (OS)
- In pediatric patients, however, higher intensity myeloablative (MAC) HCT regimens have historically been used leading to increased OS
- However, it is unclear what type of alloHCT is best for the adolescents and young adult (AYA) age group (13-39y)

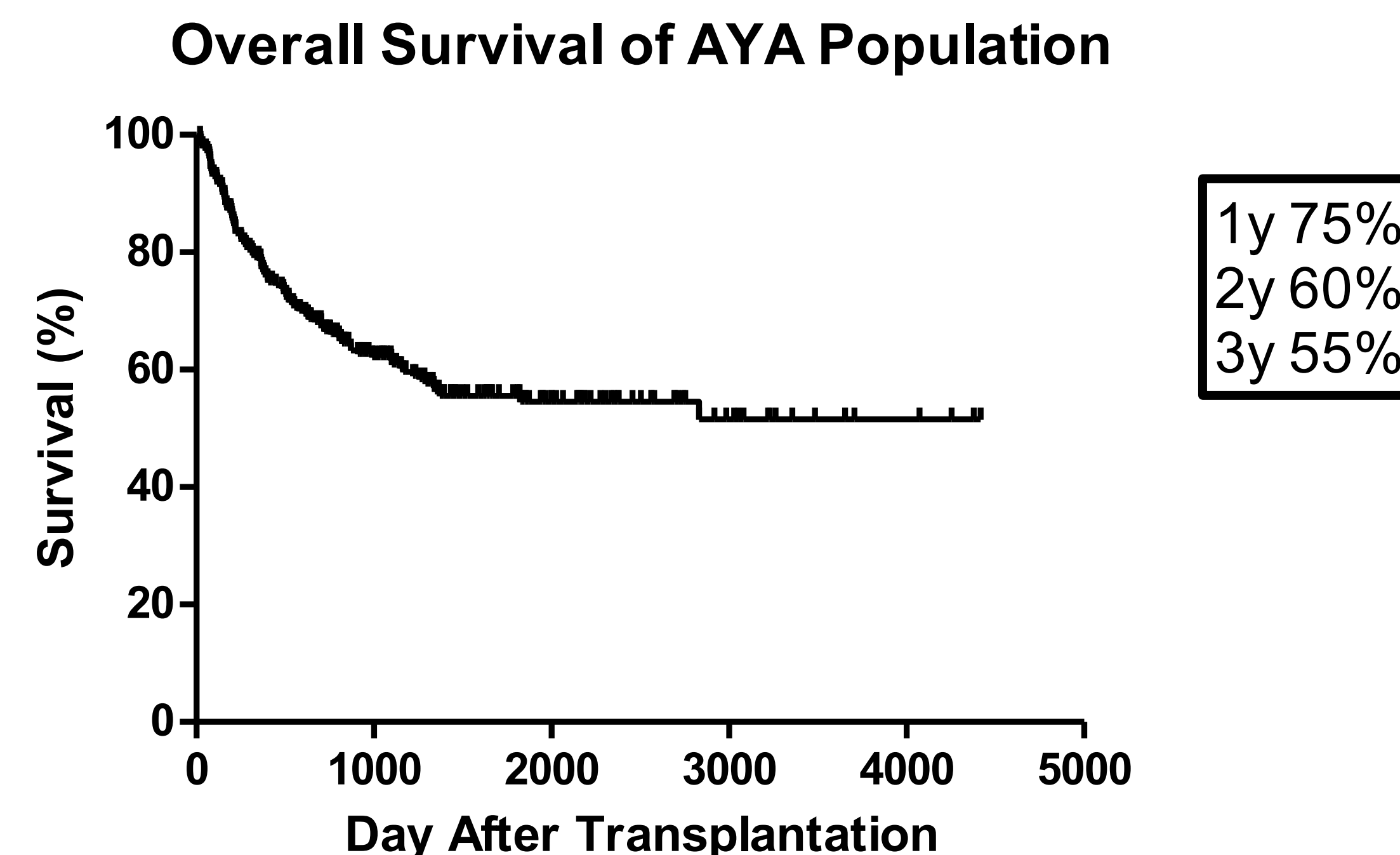
Objective

To determine the type of alloHCT that will provide the best chance of survival with the least toxicities for AYA patients

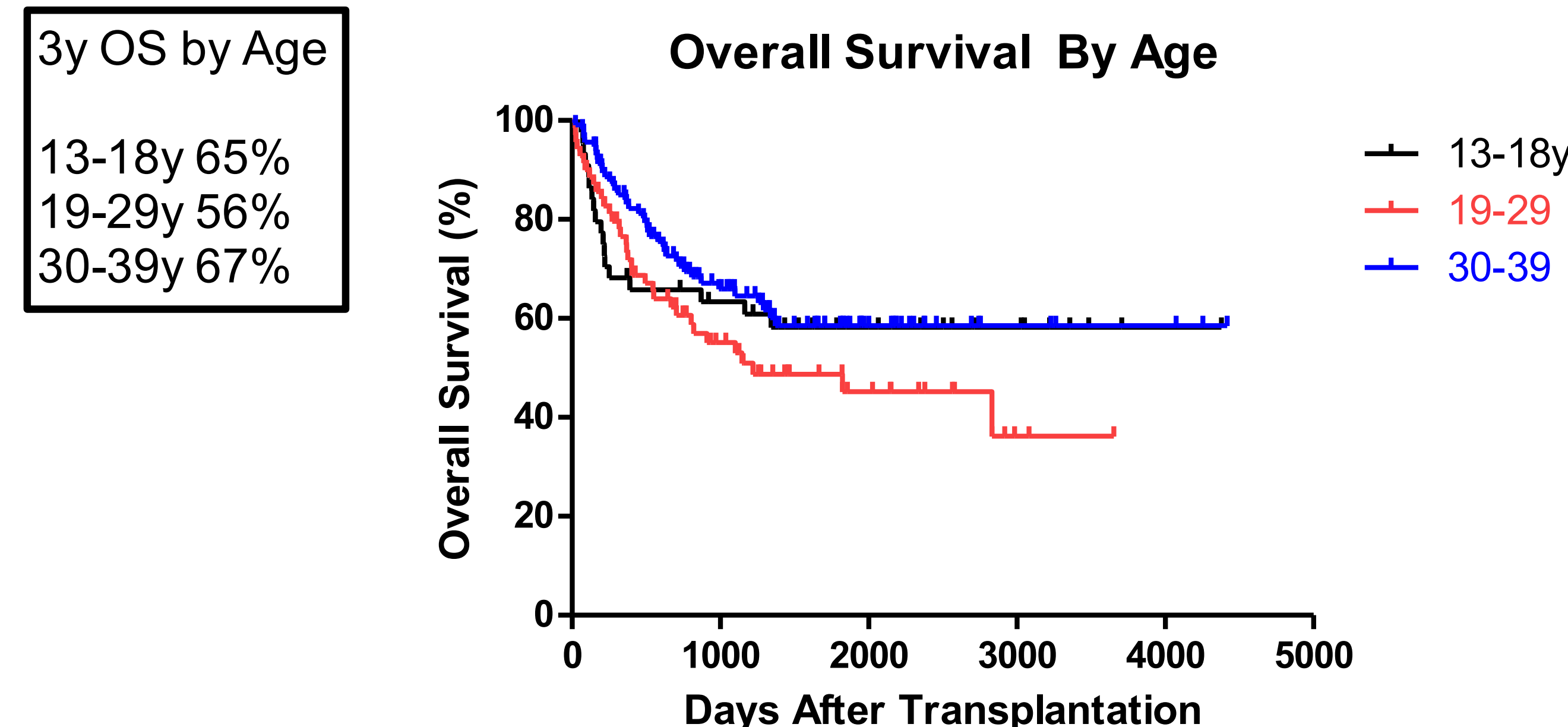
Methods

- **Study Design:** Retrospective analysis of 229 13-39-year-old patients (13-18y (n=22), 19-29y (n=92) and 30-39y (n=115)) with MDS or acute leukemia who received their first alloHCT with PTCy at Johns Hopkins Hospital from 2010-2022
- **Data Collection:** Medical Record Abstraction
- **Main Outcomes:** Overall survival, treatment related mortality, disease-free survival, relapse, acute and chronic GVHD, neutrophil and platelet recovery, donor engraftment, and post transplant complications
- **Statistical Analysis:** Log-rank statistical tests were used to create Kaplan-Meier curves.

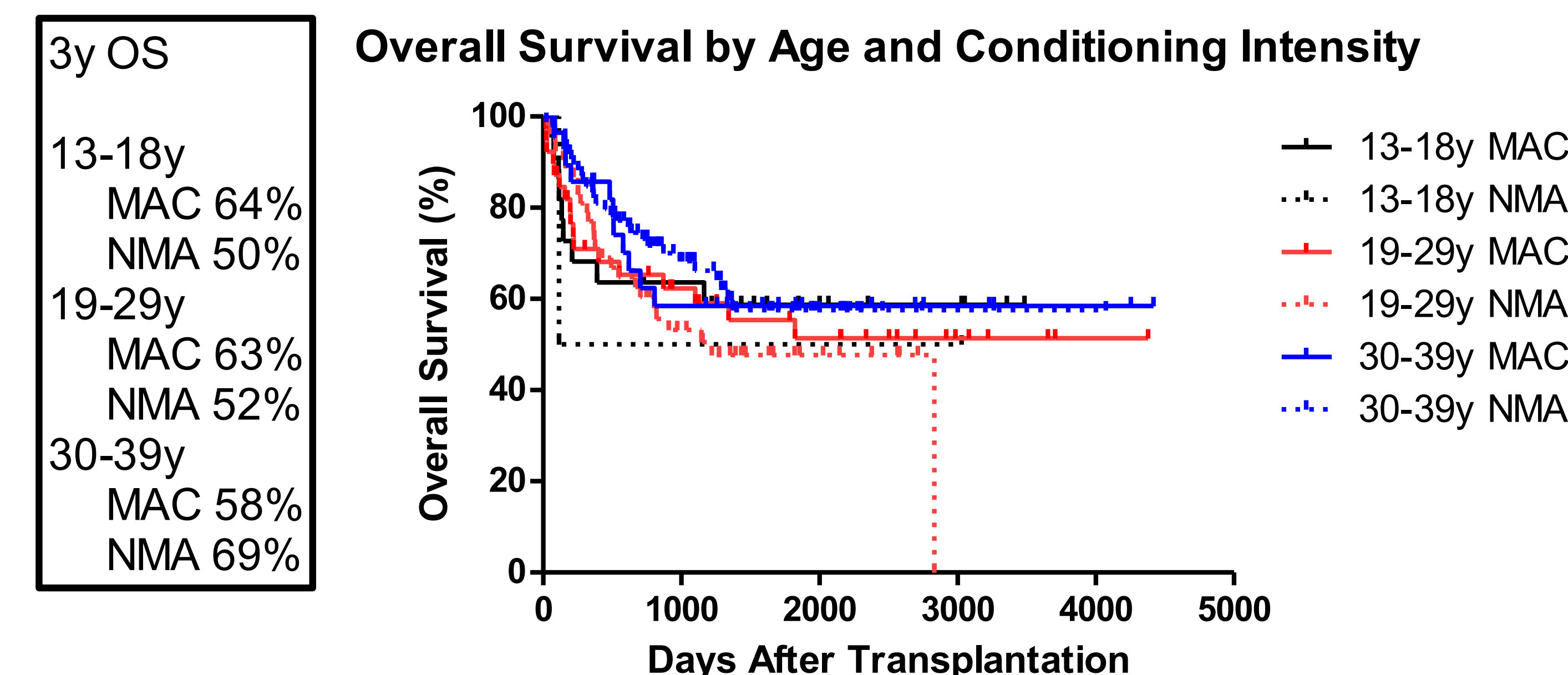
Results



Overall survival of AYA patients receiving either MAC or RIC in 1,2-and 3-years post transplant is 75%, 60%, and 55%, respectively.



The three-year overall survival of 13-18y, 19-29y, 30-39y is 65%, 56%, and 67%, respectively.



The three-year overall survival for patients 13-18y receiving MAC vs NMA was 64% vs 50%, for 19-29y was 63% vs 52%, and for 30-39y was 58% vs 69%.

Conclusions

- This data indicates a reduction in overall survival as years post-transplant increase.
- The three-year overall survival is greatest for the 30-39y age group, followed by the 13-18y age group and the 19-29y age group.
- Additionally, the data supports the use of MAC for 13-18y and 19-29y and RIC/NMA for 30-39y

Limitations

- Small sample size
- Patient population mostly reflects Baltimore/DMV community
- Retrospective study
 - Would be useful to perform a prospective study

Future Directions

- Our data shows a potential benefit of MAC in 13-18y and 19-29y and RIC for 30-39y.
- Further analysis of other patient, graft, or donor characteristics will be performed to identify whether these factors may be more important than conditioning intensity
- The results of this study will help determine the best type of alloHCT for AYA patients

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