MP 109

# Increased Urinary Liver-Type Fatty Acid Binding Protein (uL-FABP) At Baseline Portends A Poor Prognosis in Patients Undergoing Hematopoietic Stem Cell Transplantation (HCT)

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## Introduction

*AKI is the most important complication in HCT. The incidence of AKI following HCT was extremely high. The emergence of AKI was associated with short-term mortality in post-HCT patients.[1)]

*Urinary L-FABP (**uL-FABP**) is a new biomarker to detect renal tubular or ischemic tissue injury, contributing to early diagnosis of AKI, in the setting of ICU, cardiac surgery and contrast-induced nephropathy.[2)]

**The objectives of this study is to determine whether uL-FABP level at baseline is useful to predict the emergence of AKI after HCT.**

## Method

***A 1-year prospective cohort study** including 93 recipients of myeloablative HCT in Komagome Hospital from March 2009 to January 2012.

***uL-FABP measurement at baseline**

**was done before starting conditioning therapy, using the ELISA (CIMIC, Tokyo, Japan).** uL-FABP concentration was corrected by urine Cr concentration (μg/gCr).

***"Early AKI" vs. Late AKI**

defined as AKI prior to stem-cell engraftment and "Late AKI" as one subsequently occurring

***Statistics:**

Kaplan-Meier method, AUC-ROC analysis, and multivariate proportional hazards regression analysis were used. Statistical analyses were performed using EZR, version 2.14.0 (http://www.r-project.org/).

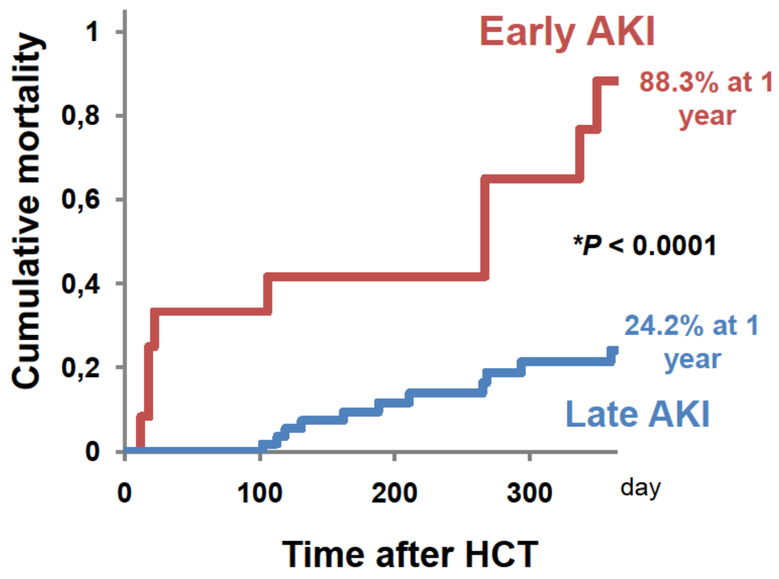
**Patients' Profile**

| | | |
|---|---|---|
| Patient no. | 93 | |
| Age (years) | 43.5 ± 12.8 | |
| Gender (M/F) | 54/39 | |
| Baseline eGFR (ml/min/1.73m²) | 99.6 ± 25.0 | |
| Stem cell | BM | 75 |
| | CB | 11 |
| | PB | 7 |

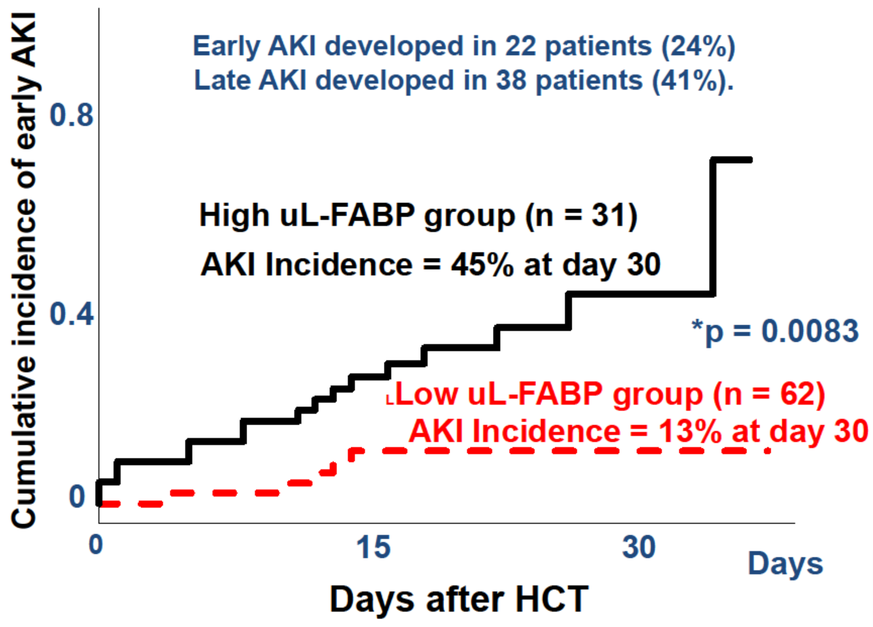
## Results

**Cumulative mortality after the incidence of early AKI over 1 year**

Mortality is 62% (58 deaths/93 HCT recipients) at 1 year after HCT

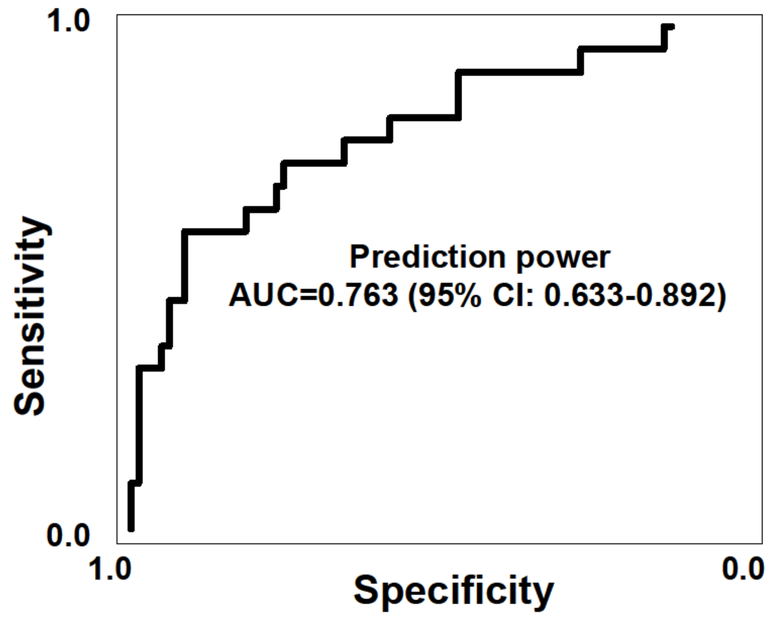



**Incidence of early AKI according to uL-FABP level at baseline**




The patients were stratified into a high and low uL-FABP group according to the median value of 4.4 μg/gCr.

**Prediction of early AKI by uL-FABP at baseline**




**Significant Associations**
**Between high uL-FABP and early AKI;**
**Between early AKI and mortalit; any**
**Between high uL-FABP and mortality**

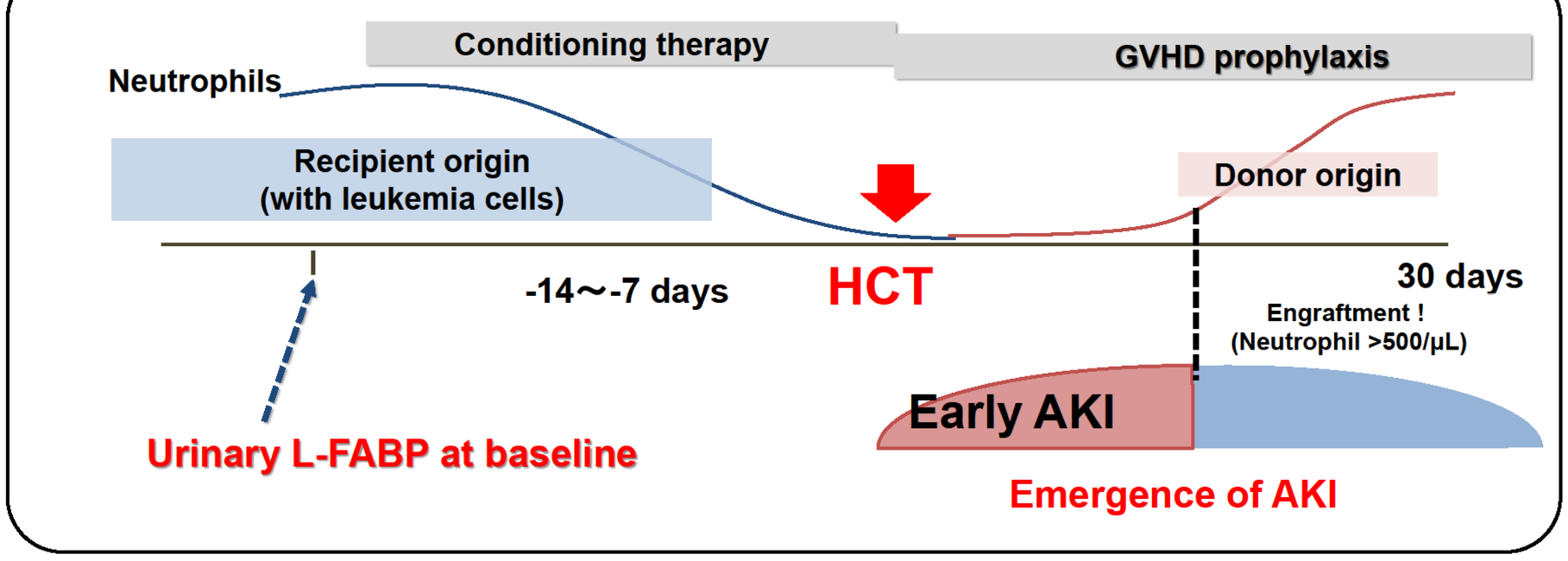
| | HR (95% CI) | P value |
|---|---|---|
| High uL-FABP for Early AKI | 8.78 (2.47-31.3) | <.001 |
| Early AKI for Mortality | 4.36 (2.35-8.10) | <.001 |
| High uL-FABP for Mortality | 4.00 (1.68-9.53) | 0.002 |

Confounders are: age, gender, some known risk factors, and HCT-comorbidity index at baseline

## Conclusion

**"Potentially-existing subclinical kidney disease", which is likely to be detected by uL-FABP elevation, portends the development of early AKI, leading to high mortality.**

## General procedure of HCT and study protocol




## References

1. Ando M et al. A comparative assessment of the RIFLE, AKIN and conventional criteria for acute kidney injury after hematopoietic SCT. *Bone Marrow Transplant* 2010; 45: 1427-34
2. Nakamura et al. Urinary excretion of liver-type fatty acid-binding protein in contrast medium-induced nephropathy Am J Kidney Dis 2006;47:439-444

**COI: The authors declare no conflict of interest.**

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