Comparison of ABO-incompatible kidney transplant outcomes between robot-assisted and open techniques

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Disclosure

I have <u>NO</u> financial disclosure or conflicts of interest with the presented material in this presentation.

Introduction

Limited adoption of RAKT -> limited cases

Most studies on RAKT focused on short-term outcomes -> limited data on long-term outcomes

Direct comparative studies between OKT and RAKT are limited -> challenging to establish the definitive benefits of RAKT

Feasibility of RAKT in immunologically risk patients -> NOT established

Aim

The study aims to perform comparative analysis between ABOi OKT and RAKT evaluating risk factors and clinical outcomes

Methods

01 — Study designs

- Single-center study

- Retrospective

- **210 OKT** vs. **29 RAKT**

- All ABOi cases

- Study date: Oct. 2020~ Feb. 2023

02 — Peri-operation

- RAKT: performed by the same surgeon

- All living cases

- Same desensitization protocols

- Monitoring of titers before and after KT
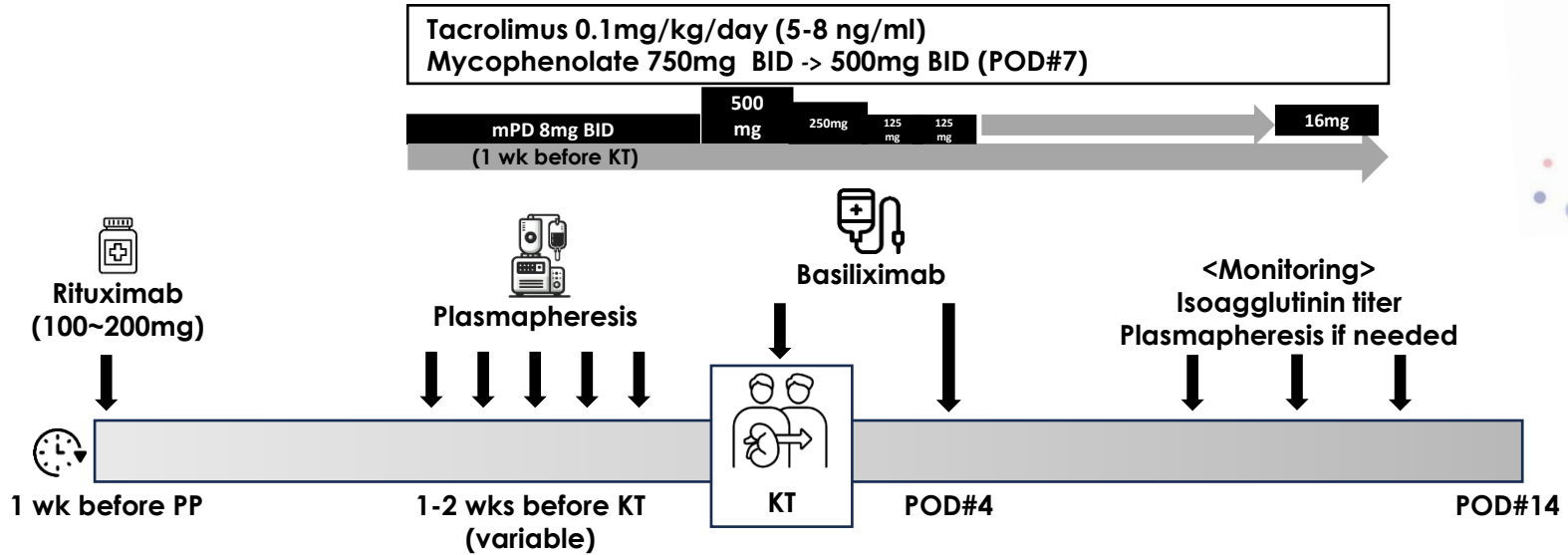
03 — Clinical outcomes

Primary endpoint: BPAR

Secondary endpoints: Graft survival, de novo DSA, eGFR

04 — Statistical analysis

Kaplan-Meir survival curve

Univariate and multivariate analyses using Cox proportional hazards method

Methods

Tacrolimus 0.1mg/kg/day (5-8 ng/ml)
Mycophenolate 750mg BID -> 500mg BID (POD#7)

mPD 8mg BID
(1 wk before KT)

500 mg | 250mg | 125 mg | 125 mg | 16mg

Rituximab
(100~200mg)

Plasmapheresis

Basiliximab

<Monitoring>
Isoagglutinin titer
Plasmapheresis if needed

1 wk before PP

1-2 wks before KT
(variable)

KT

POD#4

POD#14

Results

■ Uni-, Multi-variate analysis - **Composite overall outcome**:
            1) Graft failure
                2) BPAR
                3) *de novo* DSA

| Factors	Univariable				Multivariable			
	HR	95%CI		p-value	HR	95%CI		p-value
Open KT	1			0.7105				0.9609
RAKT	0.797	0.241	2.636		0.97	0.292	3.229	
Recipient								
Mean age, years	0.998	0.968	1.028	0.8786				
Female gender, n (%)	1.309	0.632	2.712	0.4688				
Body mass index, kg/m^2	1.069	0.985	1.161	0.11				
Preemptive transplant, n (%)	0.894	0.341	2.344	0.8199				
Dialysis duration, months	0.995	0.974	1.016	0.6424				
Retransplantation, n (%)	NA							
Number of HLA mismatch (ABDR), (range)	1.196	0.94	1.521	0.1453				
HLA-incompatible KT, n (%)	3.753	1.744	8.074	*0.0007*	2.889	0.974	8.564	0.0557
Rituximab dose (desentization)				0.4621				
<200mg, n(%)	1							
>200mg, n(%)	0.758	0.362	1.587					
IgM titer (IQR)	1	0.999	1.001	0.6989				
Pre-transplant DSA, n(%)	3.092	1.475	6.482	*0.0028*	2.161	0.842	5.547	0.1091
Immunosuppressants								
Induction, n (%)				*0.021*				0.6711
Basiliximab	1				1			
Thymoglobulin	2.527	1.15	5.553		0.78	0.248	2.452	
Calcineurin inhibitor, n (%)				0.8085				
Tacrolimus	1							
Cyclosporine	1.28	0.174	9.435					

Significant difference in HLA-incompatible KT, pre-transplant DSA, induction regimen in <u>univariate</u> analysis
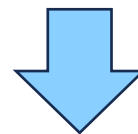
None of these factors showed significance in <u>multivariate</u> analysis

Results

■ **Kaplan-Meir Survival Curve**
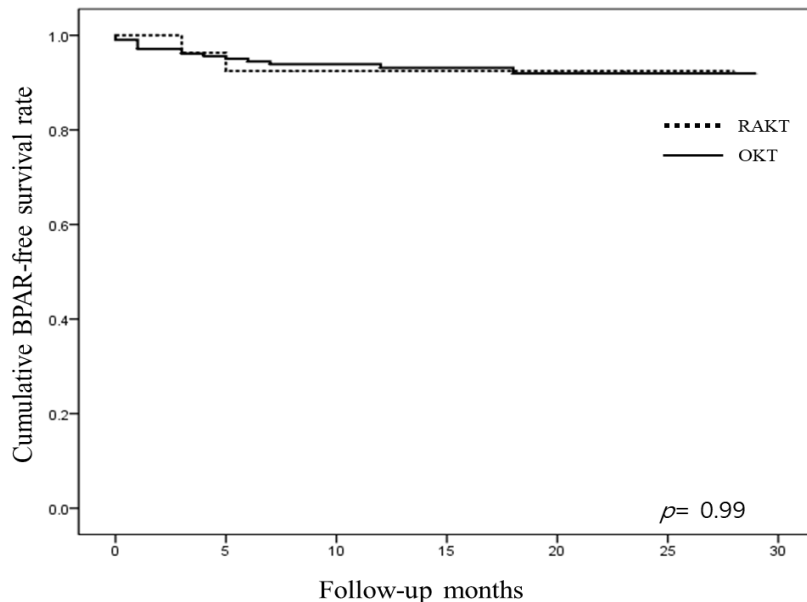
BPAR-free survival rates

- RAKT: 92.4% (at 1 year, 2 year)

- OKT: 93.1% at 1 year, 91.9% at 2 year

(p = 0.99)

Discussion & Conclusion

■ No study that analyzed the clinical outcomes between ABOi-RAKT and OKT in general populations

- Present study offers a well-matched comparative results
    - BPAR-free survival rates comparable between two groups
    (92.4% for the RAKT group vs. 93.1% for the OKT group, p = 0.99).
    - trends in eGFR measurements over the year-long observation were also consistent across both groups (p = 0.20)

Given appropriate desensitization methods, RAKT can be safely implemented in ABOi patients, yielding clinical outcomes similar to those in OKT techniques

THANK YOU

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