

Living Donor Kidney Transplantation(LDKT) from HBsAg (+) Donor to HBsAg (-) Recipient with or without Anti-HBs

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Introduction

- HBsAg positivity is currently regarded as a contraindication of kidney donation to HBsAg(-) recipients due to the risk of HBV transmission.
- Donor organ shortage is serious on this planet. The use of the HBsAg(+) donor organ may help to increase the opportunity of transplantation.
- We developed a protocol that enables LDKT from a HBsAg (+) donor to a HBsAg(-) recipient.

Protocol

- 1) **Hepatitis B vaccine in recipients** without protective titer (≥ 10 mIU/ml) of anti-HBs
- 2) **Entecavir in donors** with detectable HBV DNA in serum to reduce the viral load for 1-2 months before transplantation
- 3) **HBIG in recipients** on transplant day
- 4) **Entecavir prophylaxis in recipients** for 2-3 post-transplant months
- 5) **Monitoring of HBV transmission in recipient** ; HBsAg/anti-HBs titer, AST/ALT, and HBV Real Time-PCR on 1 day, 1 & 6 months after KT

Results

- Seven LDKT from a HBsAg(+) donor to a HBsAg(-) recipient in 6 patients
- In one case, anti-HBs of the recipient was negative, which was converted to positive (15mIU/ml) by HB vaccine before transplantation.
- All recipients had undetectable HBV DNA after LDKT and maintained HBsAg(-)/anti-HBs(+) status throughout the median follow up of 32(2-52) months

Conclusions

Kidneys from HBsAg (+) living donors can be safely transplanted to HBsAg (-) recipients.

Table 1. Donors

Case #	1	2	3	4	5	6	7
HBsAg/Ab	+/-	+/-	+/-	+/-	+/-	+/-	+/-
HBeAg/Ab	-/+	-/+	-/+	-/+	NA*	-/+	-/+
Anti HBc	+	NA	+	+	+	+	+
HBV DNA (IU/ml)	1.2×10^4	3.1×10^4	UD*	3.0×10^3	1.9×10^3	3.6×10^2	1.1×10^5
Use of Entecavir	Yes	Yes	No	Yes	Yes	Yes	Yes
HBV DNA after entecavir	UD	UD	NA**	UD	UD	UD	1.0×10^3

Table 2. Recipients

Case #	1	2	3	4	5	6	7	
HBsAg/Ab	Before KT	-/+	-/+	-/+	-/+	-/-	-/+	-/+
	Last measured after KT	-/+	-/+	-/+	-/+	-/+	-/+	-/+
HB Vaccine before KT	No	No	No	No	Yes	No	No	
Anti-HBs titer before KT (mIU/ml)	2,470	919	143	161	7 → 15†	173	703	
HBV DNA, last measured (IU/ml)	UD	UD	UD	UD	UD	UD	UD	
Follow up months	52	45	33	32	32	20	2	

* UD; undetectable (< 20 IU/ml by real-time PCR), ** NA; not available, † Before and after vaccination

