

# **Simultaneous Kidney- Pancreas Transplantation: The Vancouver Experience**



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## **Purpose**

- **To review the simultaneous kidney-pancreas transplantation program at Vancouver General Hospital with reference to both the living donor and cadaveric renal transplantation programs.**

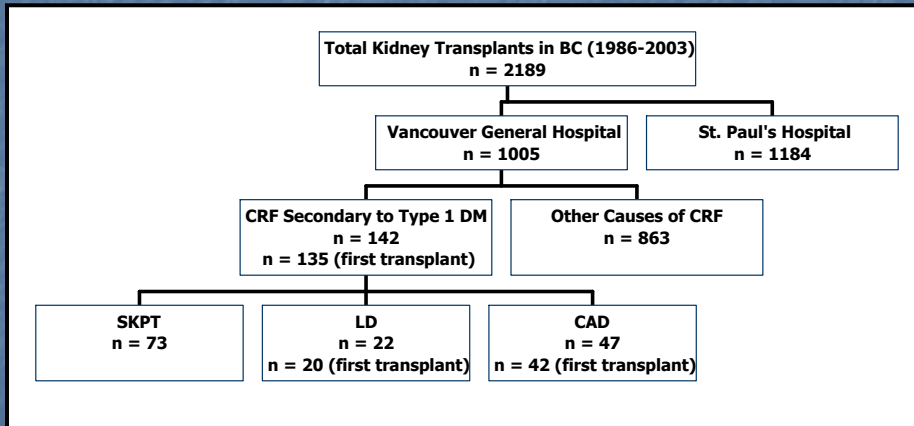
## **Methods**

- **Prospective data collection through the British Columbia Transplant Society (BCTS) database and retrospective chart review**

## **Selection Criteria**

- **Vancouver General Hospital site**
- **1986-2003**
- **Chronic renal failure (CRF) secondary to type 1 diabetes mellitus (DM)**

# Study Population



# Recipient Demographics

	SKPT	LD	CAD
<b>Number</b>	73	20	42
<b>Age</b> (Years $\pm$ 95% CI)	39.8 $\pm$ 1.62	41.3 $\pm$ 4.28	43.4 $\pm$ 2.84
<b>Sex</b>			
Male (%)	64.4	55.0	59.5
Female (%)	35.6	45.0	40.5
<b>Ethnicity</b>			
Caucasian (%)	93.2	100	93.2
Asian (%)	5.5	0.0	4.8
Black (%)	1.4	0.0	0.0

## Recipient Demographics

	SKPT	LD	CAD
<b>Pre-Transplant CrCl</b> (mL/min ± 95% CI)	14.8 ± 1.75	15.9 ± 2.65	12.4 ± 1.59
<b>Transplant Number</b>			
First (%)	100.0	95.0	97.6
Second (%)	0.0	5.0	2.4
<b>Waiting Time</b> (Days ± 95% CI)	421.5 ± 79.54	N/A	441.7 ± 224.86

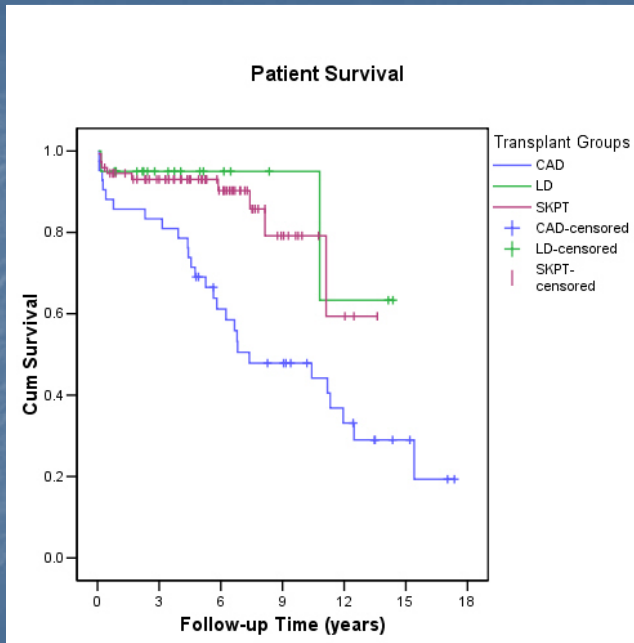
## Transplantation Parameters

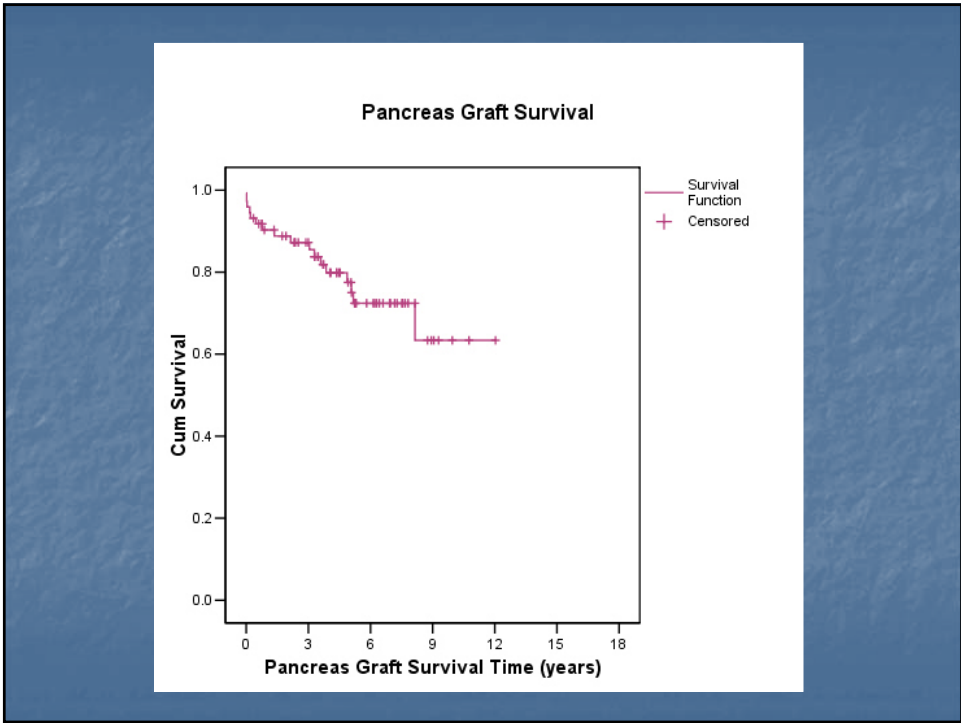
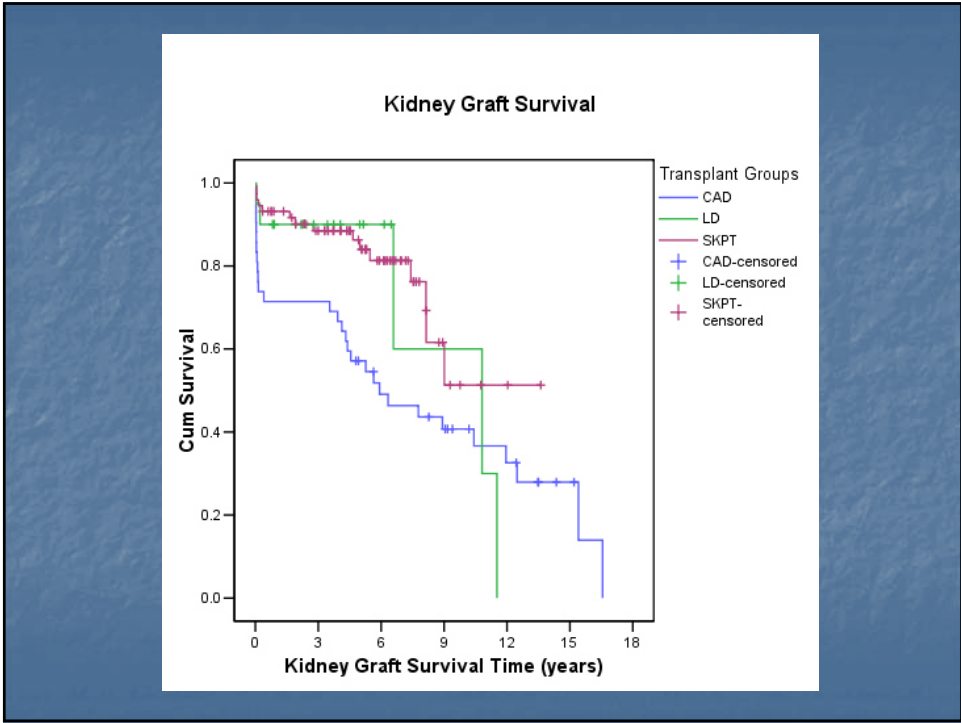
	SKPT	LD	CAD
<b>Donor Age</b> (Years ± 95% CI)	28.3 ± 2.90*	41.7 ± 4.50*	33.5 ± 4.88
<b>Total MHC Mismatch</b> (/6 ± 95% CI)	4.3 ± 0.30*†	3.1 ± 0.80*	3.1 ± 0.40†
<b>CMV Risk (%)</b>	26.0‡	10.0	2.4‡
<b>Cold Ischemic Time - Kidney</b> (Minutes ± 95% CI)	548.6 ± 46.12*†	151.8 ± 15.33*	1067.3 ± 137.00†
<b>Warm Ischemic Time - Kidney</b> (Minutes ± 95% CI)	35.4 ± 1.95	31.1 ± 4.47	31.2 ± 2.26
<b>Length of Stay (days)</b>	13.4 ± 3.2	9.1 ± 2.4	17.8 ± 9.2
* p < 0.01 for SKPT and LD † p < 0.01 for SKPT and CAD ‡ p < 0.05 for SKPT and CAD			



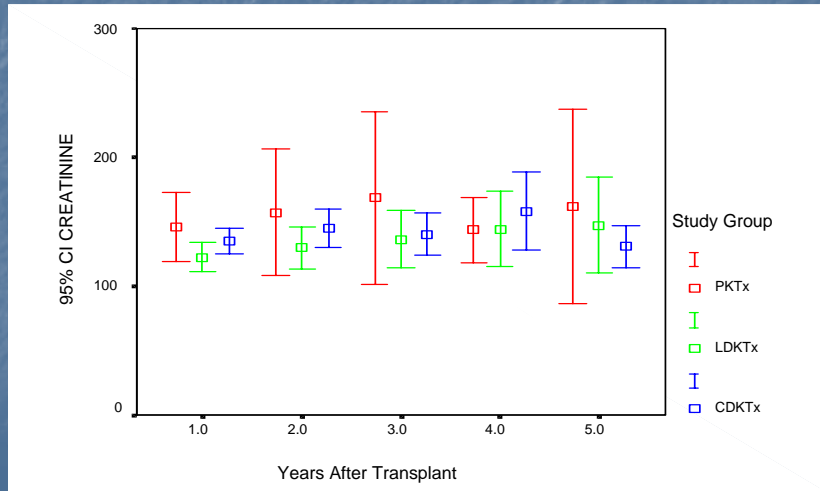
# PATIENT AND GRAFT SURVIVAL

	Patient Survival (% ± SE)			Kidney Graft Survival (% ± SE)			Pancreas Graft Survival (% ± SE)		
	1 YR	5 YR	10 YR	1 YR	5 YR	10 YR	1 YR	5 YR	10 YR
SKPT	94.5 ± 2.67	93.0 ± 3.02	79.2 ± 8.30	93.2 ± 2.96	84.0 ± 4.78	51.3 ± 13.1	90.3 ± 3.49	77.5 ± 5.45	63.4 ± 10.04
LD	95.0 ± 4.87	95.0 ± 4.87	95.0 ± 4.87	90.0 ± 6.71	90.0 ± 6.71	60.0 ± 24.90			
CAD	85.7 ± 5.40	69.1 ± 7.13	47.9 ± 7.96	71.4 ± 6.97	57.1 ± 7.64	40.7 ± 7.86			

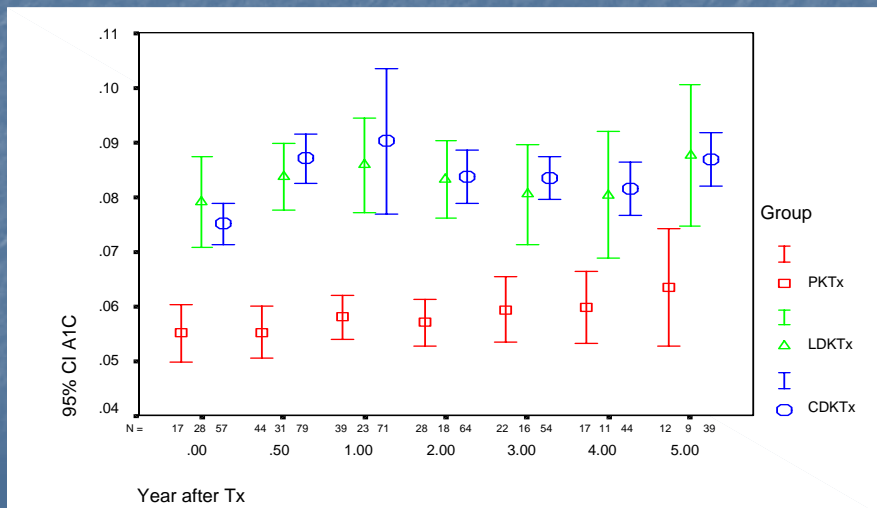




# Renal Graft Function



# Blood Glucose Control



## Causes of Graft Failure

Reason for Graft Failure	SKPT (n = 73)		LD (n = 20)	CAD (n = 42)
	Kidney	Pancreas		
Hyperacute Rejection	0	0	0	0
Acute Rejection	4	0	1	4
Chronic Rejection	4	4	1	6
Vascular Thrombosis	1	0	0	2
Infection	2	0	0	0
Recurrent Disease	0	0	1	1
Other/Uncertain	2	9	1	5
<b>TOTAL</b>	<b>13</b>	<b>13</b>	<b>4</b>	<b>18</b>

## Early Complications (≤30 DAYS POST-TRANSPLANT)

Complications	SKPT (n = 73)	LD (n = 20)	CAD (n = 42)
<b>Major</b>	10	2	7
<b>Minor</b>	59*†	3*	6†
<b>Total</b>	69	5	13

\* p < 0.01 for SKPT and LD  
† p < 0.01 for SKPT and CAD



## Conclusions

1. Descriptive demographic data revealed the following differences:
  - Donor Age: SKPT < LD
  - MHC Mismatch: SKPT > LD and CAD
  - CMV Risk: SKPT > CAD
  - Cold Ischemic Time: CAD > SKPT > LD
2. Patient survival:
  - SKPT and LD > CAD
3. Renal graft survival:
  - SKPT = LD, LD = CAD, SKPT > CAD
4. Early minor complications:
  - SKPT > LD and CAD
5. These results support SKPT as a safe and effective procedure in the patient with CRF secondary to type 1 diabetes mellitus.

## Future Areas of Research

- Prevention of end-organ damage secondary to type 1 diabetes mellitus