



# ABO Incompatible Direct Kidney Transplantation Using Glycosorb® Columns

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Galo Meliton, RN, C Neph (C)  
Renal Transplant Nurse Coordinator

**St. Michael's**

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# Background

- Blood group incompatibility remains a major barrier in direct living kidney transplantation
- KPD, List Exchange (for blood group O recipients)



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# ABO Incompatible Kidney Transplant Across the Globe

- Belgium, 1982: first ABOi kidney transplant program was established
- Japan: plasmapheresis and double filtration plasmapheresis
- USA: plasmapheresis
- **European centers: immunoadsorption columns (Glycosorb<sup>®</sup>)**  
**Sweden, Germany, Italy**
  - Also approved for use in Canada, UK, India, and Australia



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# Glycosorb<sup>®</sup> ABO Column v Plasmapheresis

- Plasmapheresis difficulties:
  - risk of infection
  - coagulation abnormalities
  - drug elimination
- Glycosorb<sup>®</sup> specifically targets immunoglobulins with no substitution of fluid or plasma components



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# Glycosorb<sup>®</sup> ABO Incompatible Living Donor Transplantation

- Option for blood group incompatible pairs
- Some donors refuse to, or can't travel, therefore KPD not an option. Some pairs won't/can't wait
- Some pairs try a few KPD match cycles and if not matched, would then consider ABOi Transplant using Glycosorb<sup>®</sup> Columns



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# Glycosorb<sup>®</sup> A/B Column



# Glycosorb<sup>®</sup> A/B Column



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# Patient Criteria

- Living kidney donor transplants
- Flow Crossmatch Negative
- Anti-A/B titres threshold (1:256)
- All combinations of ABO-incompatibilities may be transplanted except for a two-blood group antigen mismatch (i.e. donor AB and recipient O)





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# Glycosorb<sup>®</sup> ABOi Transplant

- Initial discussion/Required Consents
- Coordinate Logistics: Baseline Anti- A/B titres, A1 v A2, Initial FXM, schedule for: Rituximab, Glycosorb<sup>®</sup> Rx's, IS, etc.)
- 15 cases to date, several in workup



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# Glycosorb<sup>®</sup> ABO Column

- **St. Michael's Hospital is the first center in North America to use Glycosorb<sup>®</sup> Columns in Living Donor Direct Kidney Transplantation**
- Long term outcomes compare to those of standard living donor transplantation



# Pre-op Regimen

Treatment	Timing Prior to Transplant
Rituximab 375 mg/m <sup>2</sup> IV x 1	1 Month
Immunoabsorption with Glycosorb <sup>®</sup>	3 daily treatments prior to transplant until IgG anti- A/B titres are ≤ 1:4
Immunosuppressants- Advagraf <sup>®</sup> , Myfortic <sup>®</sup> , Prednisone	7 Days
Simulect 20 mg IV X 1 and Methylprednisolone 2mg/kg IV x1	30 minutes -1 hour pre-op



# Post-op Regimen

Treatment	Timing Post Transplant
Simulect 20 mg IV x 1 dose	Day 4
Immunosuppressives as per transplant protocol	As per transplant protocol
Titre measurement and Immunoabsorption with Glycosorb® (if necessary)	Titres: daily for the first week and on days 8, 10, 12, and 14.  Immunoabsorption if anti-A/B titres exceed 1:8 post-operatively in the first week and 1:16 in the second week



# Results

Date of transplant	Donor/ recipient ABO	Initial Anti A or B titre pre (Post-op titres)	Donor specific antibodies (DSA)	Number of pre- tx IA sessions	Number of post tx IA sessions	Serum Creatinine (umol/L)
11Aug2011	AB/A	1:4 (1:1)	No	2	0	163
14Feb2012	A1/O	1:32 (1:2)	Yes (historical)	3	1	114
24Apr2012	B/O	1:128 (1:4)	No	5	0	105
18Oct2012	A/O	1:32 (1:4)	No	3	1 (Double PLEX)	77
Not Tx'd	A/O	16	No	3	N/A	-----
31Jan2013	A/O	1:4 (0)	No	1	0	116
14Feb2013	AB/B	1:4 (1:1)	No	1	0	117
28May2013	B/O	1:8	No	2	0	159
11Feb 2014	B/A	1:4 (0)	No	1	0	108
Oct 2/14	B/O	<b>1: 512!!!</b>	No	5	0	159



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Sept 18/14	A/O	64	No	5	1	180
Dec 11/14	A/O	64	No	3	0	107
Oct 22/15	A/O	16	No	3	0	87
Feb 2/16	A/B	32	No	5	0	98
Feb 25/16	B/O	64	No	3	0	79



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# Thank You

## QUESTIONS???





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Kevin Bradley- Nurse Coordinator  
Sharon Lee- Social Work  
Andrea Daniel- Clerical Assistant

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