

# **ABO Incompatible Liver Transplantation in Children with Acute Liver Failure**

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# ABO-i liver transplantation as rescue therapy in acute liver failure: Introduction

- Untreated acute liver failure has a high mortality rate among all age groups
- Patients who fail to show signs of adequate spontaneous liver regeneration are in urgent need of emergency liver transplantation



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# Introduction

- Due to paucity of suitable blood group matched organs, adults with acute liver failure have been considered for, and successfully rescued with ABO incompatible grafts
- This approach has now been successfully implemented in children
- Case series of 5 children: transplanted for acute liver failure with very high probability of death without liver transplantation



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# Case series: 5 children transplanted between 2015 to 2018

Parameters	Child 1	Child 2	Child 3	Child 4	Child 5
Gender	Female	Male	Female	Male	Female
Age	14 yr 6 m	6 yr 6 m	5 yr 1 m	12 yrs	2 yr 7m
Referral site	Private	State: JHB	State: JHB	State: Tygerberg	State: JHB



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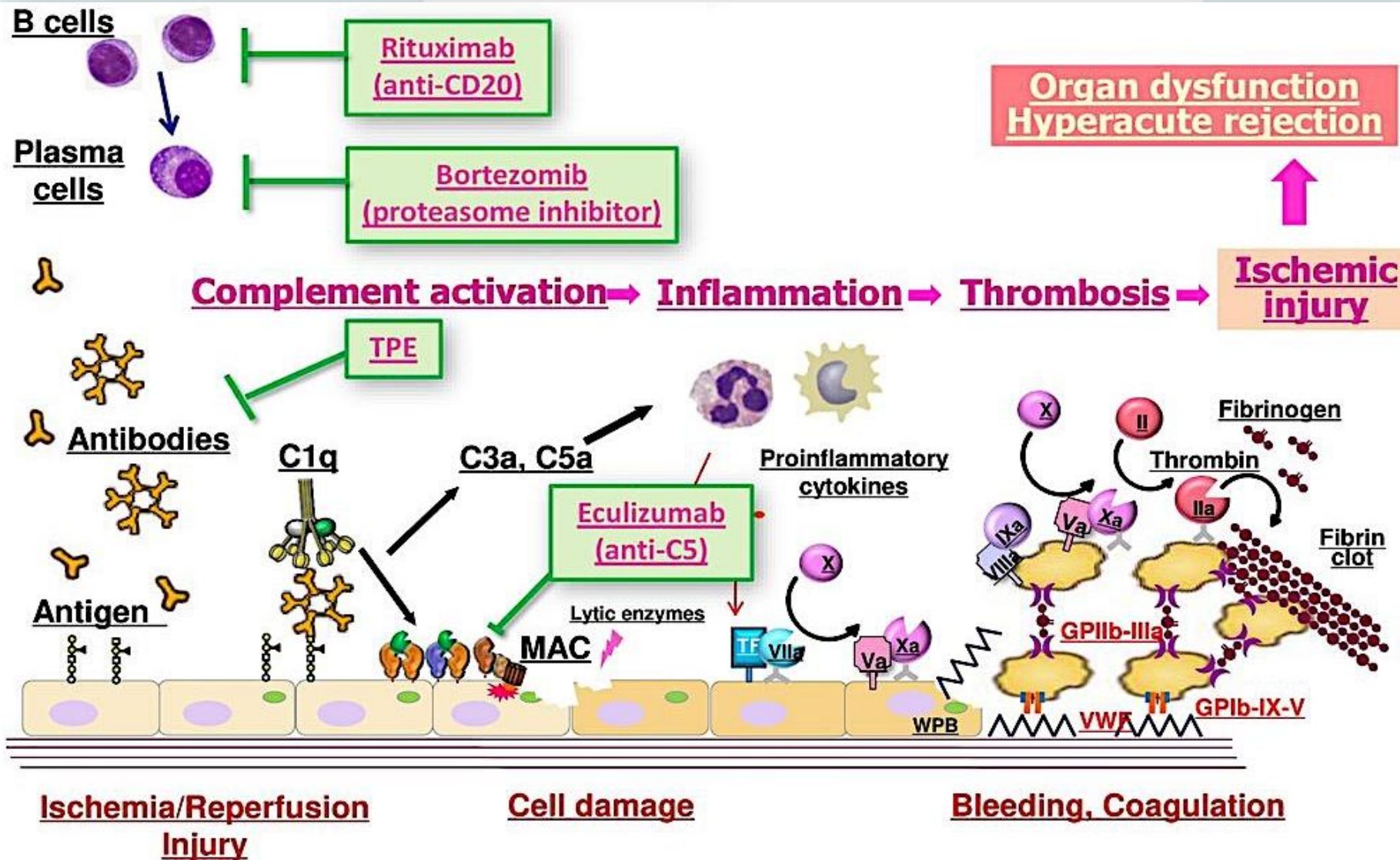
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# Case series: 5 children transplanted between 2015 to 2018

Parameters	Child 1	Child 2	Child 3	Child 4	Child 5
Aetiology	Acute Wilsons disease	Hepatitis A	Hepatitis A	Primary lymphoma of liver	Hepatitis A
Graft: patient blood group	AB to O	A to O	A to O	A to O	AB to B
Graft type	Whole	RLD 2,3	Split 2,3	RLD 2,3,4	RLD 2,3



# Immunosuppression regimen

- Corticosteroids, Tacrolimus, and Mycophenolate mofetil
- Pre-transplant measurement of anti-ABO titers performed:
  - Course of post-transplant plasmapheresis until titers dropped below 1:4
  - Followed by 2 doses of Rituxumab one week apart
  - Further therapy was guided by the clinical situation, hepatic function, presence of hemolysis and titer evolution

# Complications

- All recipients currently alive with no graft loss
- No major vascular complications (hepatic artery, portal vein or hepatic vein thrombosis)
- Biliary complications common:
  - Cut surface and anastomotic leaks
  - Most dealt with via interventional radiology



# Conclusions

- ABO-i liver transplantation in children is justifiable in the emergency situation when a blood group compatible donor is not available
- Careful monitoring of hemagglutinins and specific immunosuppression allows for successful use of this life saving therapy
- Expanding the use of this approach will allow for more frequent transplantation and lessen the burden on the organ waiting list.