

# Infectious Complications after Treatment of Antibody-Mediated Kidney Allograft Rejection: A National Cohort Study

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## Background

Multimodal therapeutic strategies used to treat acute antibody-mediated rejection (AMR) could enhance the risk of infection.

## Objectives

- To describe the occurrence of infectious complications
- To analyze the impact of the different therapeutic strategies on the incidence of infection after AMR treatment

## Methods

### Study population

- All kidney transplant (KT) recipients from the Swiss Transplant Cohort Study (STCS)<sup>1</sup>
- Who received a treatment for an acute AMR episode occurring in the first year post-transplantation (Tx) (2008-2014).

### Data

- Acute AMR treatment used
- Infectious complications occurring in the 6 months following acute AMR treatment
- Patient and graft survival

### Analysis

- Risk factors of infection after AMR treatment: uni- and multivariate Cox regression models
- Time-to-event curves: Kaplan-Meier method (log-rank test for inter-group differences)

## Results

66/1669 (3.9%) KT recipients were treated for an acute AMR episode in the first year post-Tx.

**Table 1:** Demographics and clinical characteristics of the study population

Characteristics	Value
Patients, n	65 (66 Tx)
Male, %	56.1
Age, mean $\pm$ SD	46.1 $\pm$ 18.5
Living donor, %	27.3
First transplantation, %	53.0
CMV serostatus, %	
D+/R+	34.8
D-/R+	33.3
D+/R-	16.7
D-/R-	15.2
Positive EBV serostatus (anti-EBNA), %	98.5
Positive HBV serostatus (anti-HBc), %	6.6
Positive HCV serostatus, %	6.1
Positive HIV serostatus, %	3.0
Antiviral prophylaxis for CMV, %	56.1
Anti-Pneumocystis prophylaxis, %	98.5

## Conclusion

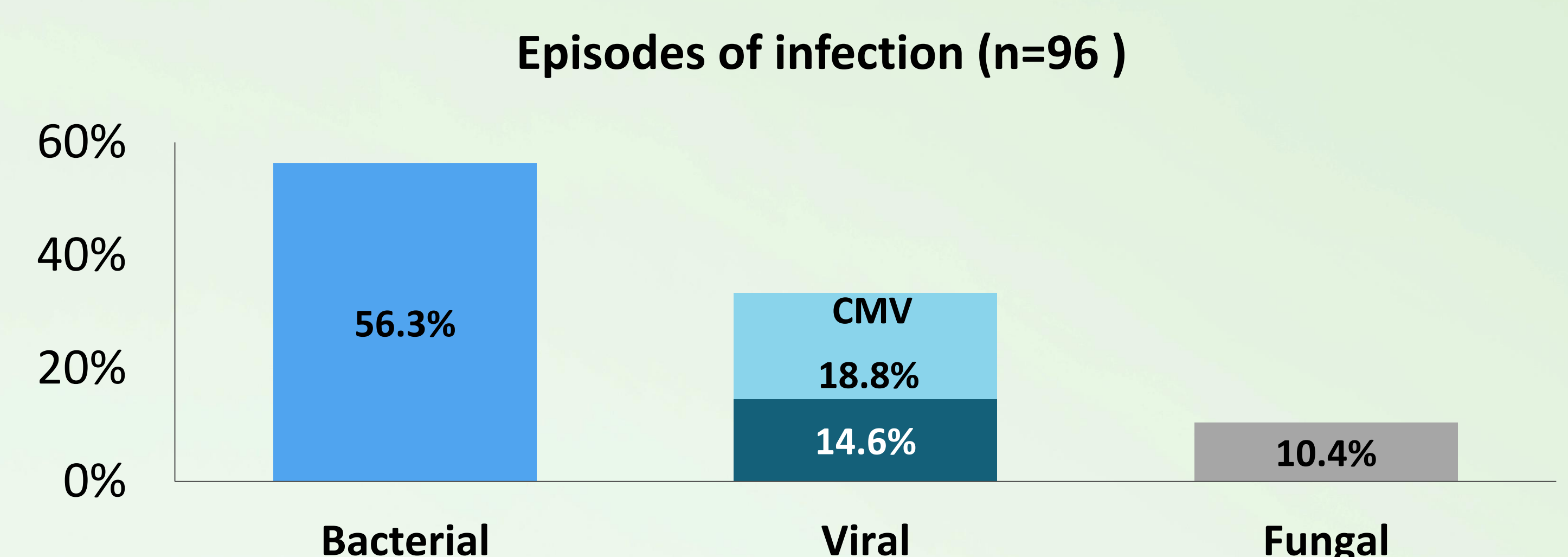
- Infectious complications were common after acute AMR treatment.
- Infection-associated mortality was low (3.1%).
- Plasmapheresis was associated with an increased risk of infection.
- IVIg may reduce the incidence of bacterial infection.

### 1 year survival outcomes:

- Graft survival (death-censored) : 90.9%
- Patient survival : 93.8% (2/4 patients died of severe infection)

### Infectious complications within 6 months:

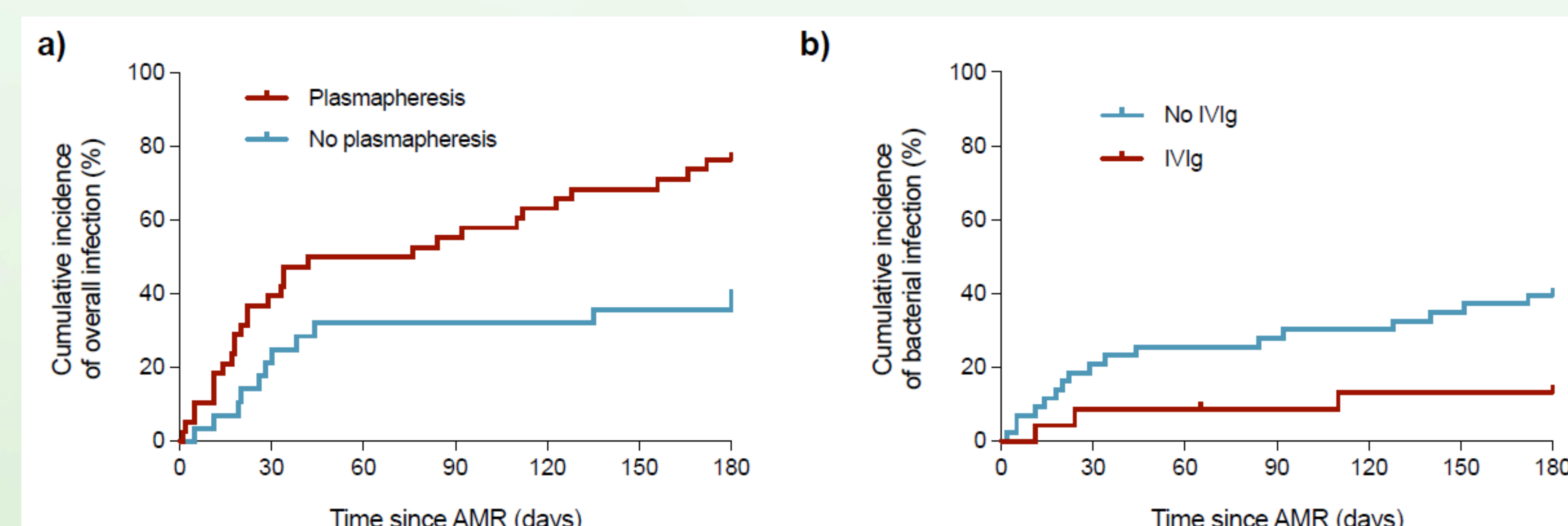
- 63.6% (42/66) of transplants**
- 2.3 episodes/patients**



**Figure 1:** Type of infectious complications within the first 6 months after acute AMR treatment. Main bacterial infections: urinary tract inf. 37.0%, respiratory tract inf. 20.4%, blood stream inf. 18.5%.

**Table 2:** Multivariate analysis of risk factors predicting the occurrence of infection

Risk factor	Hazard Ratio (HR)
<b>For overall infection:</b>	
Plasmapheresis	HR: 2.9 (95%CI: 1.5-5.7), P = 0.002
<b>For bacterial infection:</b>	
Induction with Rituximab	HR: 6.6 (95%CI: 2.1-20.7), P = 0.001
IVIg	HR: 0.3 (95%CI: 0.1-1.0), P = 0.053
<b>For opportunistic infection:</b>	
Plasmapheresis	HR: 5.3 (95%CI: 1.2-27.7), P = 0.033



**Figure 2:** a. Overall infection according to the use of plasmapheresis (log-rank test  $P$ -value = 0.002), b. Bacterial infection according to the use of IVIg (log rank test  $P$ -value = 0.035). IVIg: intravenous immunoglobulins

## Reference

- Koller M.T., et al. Eur J Epidemiol, 2013. 28(4): p. 347.

