Scottish Society of Anaesthetists
Spring Meeting 2025
Abstract Submission Form

Abstract Title
Impact of neuromuscular blockade reversal with Sugammadex on acute allograft rejection in renal transplantation

Corresponding Author	
Name	Dima Nassif
Designation	ST7 Anaesthetic Registrar
Institution	Anaesthetic Department, Queen Elizabeth University Hospital
Address	1345 Govan Road, Glasgow, G51 4TF
Email	dima.nassif2@nhs.scot

Abstract text (maximum 300 words)

Impact of neuromuscular blockade reversal with Sugammadex on acute allograft rejection in renal transplantation

Dima Nassif*[1], Lynn Valentine*[1], Morven Millar[1], Jillian Scott[1], Tereza Cillikova[2], John Asher[3], Indy Raju[1], Stephen R Knight[3,4]
*Joint first authors
[1]Anaesthetic Department, Queen Elizabeth University Hospital Glasgow, UK
[2]University of Glasgow Medical School, Glasgow, UK
[3]Renal Transplant Unit, Queen Elizabeth University Hospital Glasgow, UK
[4]School of Health and Wellbeing, University of Glasgow, Glasgow, UK

Background
Acute rejection is a frequent complication in renal transplantation, reducing allograft lifespan by four years[1] and causing significant patient anxiety. The selective neuromuscular blockade reversal agent Sugammadex is known to reduce respiratory complications following renal transplantation,[2] but its interaction with immunosuppressive steroids given at induction remains unknown.

Methods
All patients aged ≥18 years old receiving a renal transplant between 1st May 2015 – 31st December 2023 in a single institution were included. A retrospective review of individual anaesthetic charts was performed and linked to a prospectively curated electronic health record (SERPR). Acute rejection was diagnosed through allograft biopsy and classified according to the Banff criteria. Multivariate models were constructed accounting for important patient characteristics to determine the impact of Sugammadex on acute rejection episodes within the first year following transplantation.

Results
A total of 1226 patients were included, with 156 (12.7%) diagnosed with acute allograft rejection in the first year following renal transplantation. Sugammadex was given to <25% patients before 2017, increasing to >90% from 2022 onwards. Acute allograft rejection was not associated with Sugammadex use (aOR 1.36, 95% CI 0.75 -2.55; p=0.324). However, the occurrence of severe rejection was greater in patients who received Sugammadex (aOR 2.85, 0.93-9.96; p=0.079) and repeated exposure to Sugammadex increased rejection events almost eight-fold (p=0.045).

Discussion
Neuromuscular blockade reversal with Sugammadex is safe in patients receiving renal allografts and provides significant patient benefit in the immediate postoperative period. In the event of recurrent Sugammadex use for postoperative complications, additional intravenous steroid use may be indicated to reduce acute rejection rates.

References
1. McDonald S, et al. American Journal of Transplantation. 2007 May 1;7(5):1201–8.
2. Carron M, et al. Perioper Med (Lond). 2022 Jan 13;11(1):3.