

# **Infective endocarditis and Staphylococcus aureus bacteremia in patients with end-stage kidney disease - The impact of renal replacement therapy modalities**

by  
**Mavish Safdar Chaudry**

Patients with end-stage kidney disease (ESKD) have a high risk of infective diseases in part as a consequence of renal replacement therapy (RRT) modalities.

This dissertation aimed to investigate incidence and risk factors of infective endocarditis (IE) and Staphylococcus aureus bacteremia (SAB) in Danish ESKD patients by using nationwide Danish administrative registries.

Paper I investigated the incidence and risk factors of IE in different modalities of RRT during 1996-2012 in 10,612 ESKD patients. The main finding was an increased risk of IE in patients receiving hemodialysis compared with peritoneal dialysis patients. Central venous catheters (CVC) carried the highest risk in patients receiving hemodialysis. The risk of IE in patients with CVC (cuffed and uncuffed) was comparable. The initial 6 months of RRT carried a high risk of IE.

Paper II evaluated the mortality rate and cause of death in hemodialysis- and non-ESKD patients with Staphylococcus (S.) aureus endocarditis. The major finding was a similar in-hospital mortality rate in hemodialysis- compared with non-ESKD patients, whereas the mortality rate at one-year follow-up was higher in hemodialysis- compared with non-ESKD patients. The risk of all-cause- and cardiovascular mortality in patients receiving hemodialysis exceeded the risk in non-ESKD patients at more than 70 days and 81 days after admission with S. aureus endocarditis, respectively.

Paper III investigated the risk and incidence of SAB by hemodialysis vascular access types from 1996-2011 in 9997 ESKD patients. The primary finding was an increased risk of SAB in patients receiving hemodialysis compared with those receiving peritoneal dialysis. The risk of SAB was markedly increased in patients receiving hemodialysis with CVC. The SAB risk did not differ in cuffed- and uncuffed CVC. The initial 90 days of RRT with CVC carried the highest risk of SAB followed by arteriovenous fistula.

The main results of this thesis outline the high risk of IE and SAB in patients with ESKD. The findings emphasize the importance of increased awareness among health professionals of IE and SAB especially in the initial period of RRT.

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**PhD lecture**

**By**

**Mavish Safdar Chaudry**

**Friday 12 October 2018**



**DEPARTMENT OF HEALTH SCIENCE AND TECHNOLOGY**  
AALBORG UNIVERSITY

This thesis is based on  
Mavish Safdar Chaudry's research work at:

**Department of Health Science and Technology**  
**Aalborg University, Denmark**

To fulfill the requirements for the PhD degree, Mavish Safdar Chaudry has submitted the thesis: Infective endocarditis and Staphylococcus aureus bacteremia in patients with end-stage kidney disease - The impact of renal replacement therapy modalities, to the Faculty Council of Medicine at Aalborg University.

The Faculty Council has appointed the following adjudication committee to evaluate the thesis and the associated lecture:

**Associate Professor Kasper Karmark Iversen**  
Copenhagen University  
Denmark

**Adjunct professor Anders Christensson**  
Skåne University Hospital  
Sweden

**Chairman:**  
**Clinical Professor Jeppe Hagstrup Christensen**  
Aalborg University Hospital  
Denmark

**Moderator:**  
**Adjunct Professor Niels Eske Bruun**  
Aalborg University  
Denmark

The PhD lecture is public and will take place on:

**Friday 12 October 2018 at 14:00**  
**Herlev Hospital – Lille auditorium**  
**Herlev Ringvej 75**  
**2730 Herlev**

**Program for PhD lecture on**

**Friday 12 October 2018**

**by**

**Mavish Safdar Chaudry**

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Chairman: Clinical Professor Jeppe Hagstrup Christensen  
Moderator: Adjunct Professor Niels Eske Bruun

14.00	Opening by the Moderator
14.05	PhD lecture by Mavish Safdar Chaudry
14.50	Break
15.00	Questions and comments from the Committee Questions and comments from the audience at the Moderator's discretion
16.00	Conclusion of the session by the Moderator
16.15	A reception will be arranged