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Evaluation of the most common microorganisms causing surgical site infections after renal transplantation

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Background

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Renal transplant recipients are highly susceptible to infections due to surgical complexity and immunosuppression, with surgical site infections (SSI) being a significant early postoperative complication.

This study aimed to identify the common microorganisms causing SSI after renal transplantation and evaluate their susceptibility to standard antibiotics.

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Methods

- Single-center, observational cohort study of adult renal transplant patients from January 2017 to December 2019 (n=231)
- Cephalosporins were used for prophylaxis
- Evaluation of risk factors for SSI (age, gender, body mass index (BMI), type of donation) and clinical outcomes (organ function, patient survival, SSI occurrence, hospital stay)
- Patients were grouped by BMI (<25, 25-30, >30)
- Microbial specimens from SSI cases (n=46) were analyzed using conventional methods and antibiotic sensitivity tests

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Results

231 kidney transplant recipients (56 ± 12.8 years, male 149, living donation 41)

46 developed SSIs (55 ± 12,82 years, male 31, living donation 11)

SSIs occurred in 15.4% of BMI group 1, 18.5% of group 2, and 28.8% of group 3

Of the 46 SSIs, 29 (63%) were monomicrobial, and 17 (37%) were polymicrobial

Predominant organisms: Staphylococcus epidermidis (23.9%), Enterococcus faecalis (21.7%), coagulase-negative staphylococci (26.1%), and Candida albicans (21.7%)

Numerous other bacteria and fungi against which the routine antibiotic was not effective, were found, especially in patients with a higher BMI

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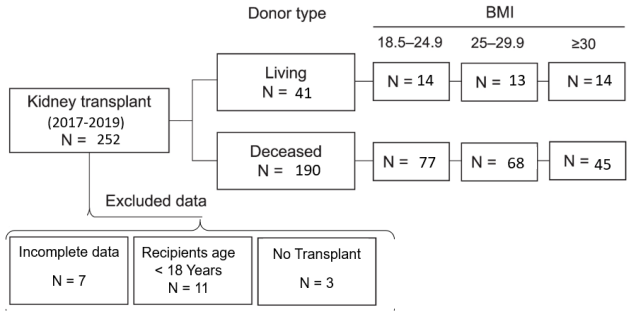
Results

Patient flow



Organisms causing SSI

	Organismus	Relative Häufigkeit (%) (n = 14 Organsimen)
Gramm positiv	Staphylokokkus epidermidis	11 (23,91%)
	Staphylokokkus haemolyticus	3 (6,52%)
	Staphylokokkus Warneri	1 (2,17%)
	Enterokokkus faecium	6 (13,04%)
	Enterokokkus faecialis	10 (21,74%)
	Lactobacillus spp.	3 (6,52%)
Gramm negativ	Koagulase-negative Staphylokokken	12 (26,09%)
	Klebsiella spp.	4 (8,70%)
	Acinetobacter lwoffii	2 (4,35%)
	Bacteroides thetaiotaomicron	2 (4,35%)
	Enterobacter cloacae complex	1 (2,17%)
	Enterobacter Hormaechei	1 (2,17%)
Fungi	Candida albicans	10 (21,74%)
	Candida spp.	4 (8,70%)

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Conclusion

SSI is an early complication after renal transplantation, which brings a great burden to patients. Therefore, preventing wound infection is extremely important. Routinely used anti-infective substances do not cover all bacteria and fungi, which especially occur in patients with a higher BMI. Therefore, the routine anti-infective therapy should be re-evaluated in further studies and possibly expanded in high-risk patients.

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