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### PAEDIATRIC NODAT FOLLOWING KIDNEY TRANSPLANT: CLINICAL CHARACTERISTICS OF FOUR CASES AT HOSPITAL TUNKU AZIZAH

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#### INTRODUCTION

New-onset diabetes after transplantation (NODAT) is a clinically significant complication associated with adverse metabolic and graft outcomes and affects patients' quality of life. Data in paediatric populations are limited. This case series describes the incidence, clinical characteristics, and early outcomes of NODAT in a paediatric kidney transplant cohort.

#### CASES

Thirty patients (aged 5–17 years; 16 males, 14 females; 14 Malay, 15 Chinese, 1 Indian) underwent renal transplantation at Hospital Tunku Azizah between 2019 and 2025.

NODAT was identified using standard diagnostic criteria and occurred in four patients (13.3%). Among patients who developed NODAT, three were Malay and one Chinese; all were aged 10–17 years, with a predominance of females ( $n = 3$ ). All were non-obese (body mass index [BMI]: 11–21.4 kg/m<sup>2</sup>), and only one had a family history of type 2 diabetes mellitus. Underlying causes of ESRF in these patients included focal segmental glomerulosclerosis (FSGS,  $n = 2$ ), CAKUT ( $n = 1$ ), and unknown etiology ( $n = 1$ ). Two patients received kidneys from living donors, and two from cadaveric donors. Two patients demonstrated reduced C-peptide levels, consistent with impaired insulin secretion. All patients received steroid induction and maintenance therapy alongside tacrolimus-based immunosuppression, with one patient also receiving everolimus. Two patients developed post-transplant CMV viremia, which has been associated with NODAT.

The onset of NODAT was early, occurring within 2 weeks post-transplant in three patients and at 1 month in one patient. Insulin therapy achieved glycemic control in all cases. Two patients were able to discontinue insulin within 3–4 months, suggesting recovery of endogenous glycemic regulation, while the remaining two required ongoing insulin therapy.

#### CONCLUSION

NODAT affects a substantial proportion of paediatric kidney transplant recipients and may present despite the absence of conventional risk factors. Early surveillance is essential. The observed potential for insulin independence may indicate a reversible component of  $\beta$ -cell dysfunction, which warrants further investigation in larger cohorts.