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New-Onset Diabetes after Renal Transplantation (NODAT): Risks & Risk Factors

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Abbrevations: RT: Renal Transplantation; NODAT: New-Onset Diabetes After Renal Transplantation; PTDM: Post-Transplant Diabetes Mellitus; DM: Diabetes Mellitus

Mini Review

Renal transplantation (RT) is the last resort for patients with end-stage renal disease and is the only way out to prolong the life expectancy of such patients with an improvement in the quality of life [1]. However, the anticipated benefits of RT have to be weighed against the potential risks viz. risk of developing new onset diabetes, opportunistic infections, renal allograft rejection and transplant failure [2]. New-onset diabetes after renal transplantation (NODAT) is a serious metabolic complication which not only heightens the mortality rate due to allograft rejection but also leads to increased cardiovascular disease [3]. NODAT is very much distinct from post-transplant diabetes mellitus (PTDM) where we exclude all the patients with a previous diagnosis of diabetes mellitus (DM) or unknown status of DM. The prevalence of NODAT is variable and is reported between 2% to 50%, probably owing to inconsistent definitions used for diagnosing NODAT [4].

The higher prevalence of NODAT as reported from multiple studies of Indian sub-continent reflects the greater susceptibility of South Asian population to develop NODAT as compared to the Caucasians [5]. Thus, it would be prudent to identify this high-risk ethnic groups and follow-up them closely to shift them towards a favorable prognosis. A number of the modifiable as well as non-modifiable vis-à-vis traditional and novel risk factors have been identified for the development of NODAT. Many of these risk factors are general to diabetes population whereas some are unique to the transplant population [4].

The general risk factors includes increased age, high body mass index greater than 30 kg/m2, African-American and Hispanic ethnicity whereas the transplant specific risk factors includes usage of specific agents for immunosuppression, mismatch of human leukocyte antigen, donor sex and type of underlying renal disease [6] impaired glucose tolerance prior to transplant [7], and hyperglycaemia in the immediate perioperative period [1,8,9]. A recent prospective study from a tertiary care centre in Eastern India have additionally found magnesium levels, HbA1c level (pre as well as post-operative), ABO compatibility, insulin resistance (measured by HOMA-IR), insulin sensitivity (measured by HOMA-S) and decreased beta cell function & c-peptide levels as significant predictors of NODAT. It is high time to translate this information and develop a risk-based scoring system to identify patients who are at risk of developing NODAT and monitor them closely for preventing untoward complications.

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