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Malignancy Risk with Belatacept vs. Calcineurin Inhibitors in Kidney Transplant Recipients: Systematic Review and Meta-Analysis: TH-PO0196

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Background:

Belatacept is associated with post-transplant lymphoproliferative disease, but its impact on other solid cancers in kidney transplant recipients (KTR) remains unclear.

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Methods:

We conducted a systematic review and meta-analysis to compare the incidence of cancers in KTRs receiving belatacept- vs. calcineurin inhibitor (CNI)-based immunosuppression. Primary outcomes were incidence of skin cancers (SC) and all malignancies. Studies were identified via PUBMED and CENTRAL through January 2025. Odds ratios (OR) with 95% confidence intervals (CI) were calculated using a

random-effects model. Subgroup analyses were performed by race and prior immunosuppressant exposure.

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Results:

After screening 892 studies, thirteen studies (10 randomized controlled trials (RCTs) and 3 cohort studies; total 3,070 patients) were included. Among RCTs, SC incidence did not differ significantly between belatacept and CNI groups (OR 1.01, CI 0.73-1.41, p=0.67) [Figure 1]. Stratification by race showed no significant differences. However, belatacept-based regimen was associated with higher SC incidence compared to CNI-based regimen in belatacept conversion studies (n = 4) (OR 1.78 [CI 0.74-4.28]) vs. de novo belatacept studies (n = 5) (OR 0.85 [0.72-1.02]) (p = 0.014) [Figure 2]. The risk of all malignancies was also similar between groups (OR 1.14, CI 0.72-1.79, p=0.17), with or without race stratification. When stratified by prior immunosuppression, OR was 1.83 [0.99-3.39] in belatacept conversion studies vs 0.92 [0.50-1.70] in de novo belatacept studies (p=0.09).

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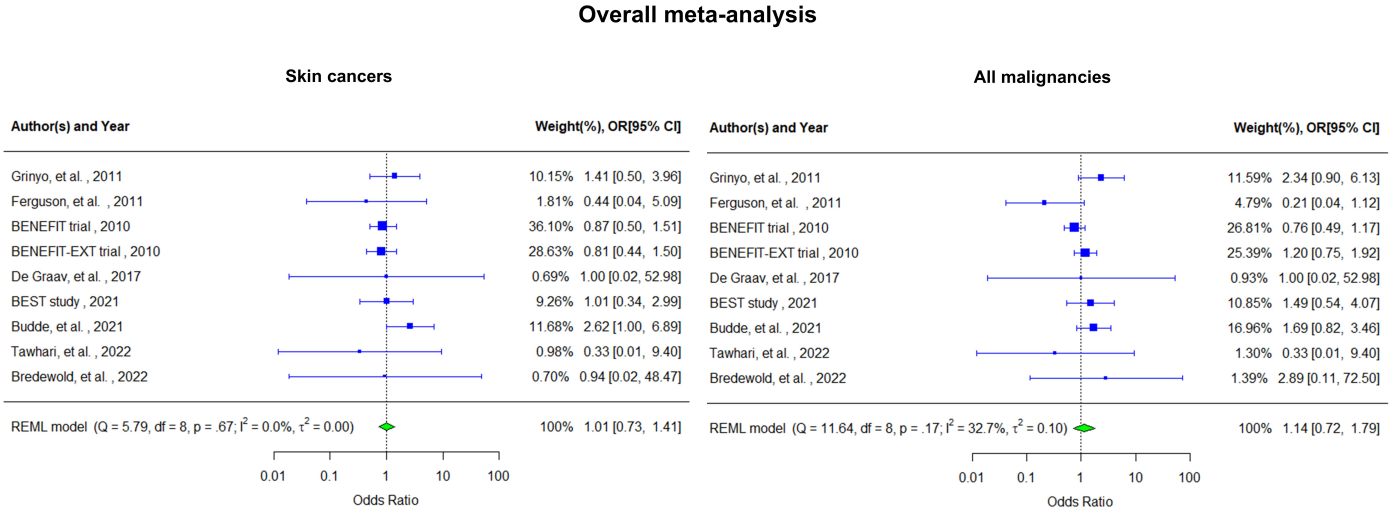
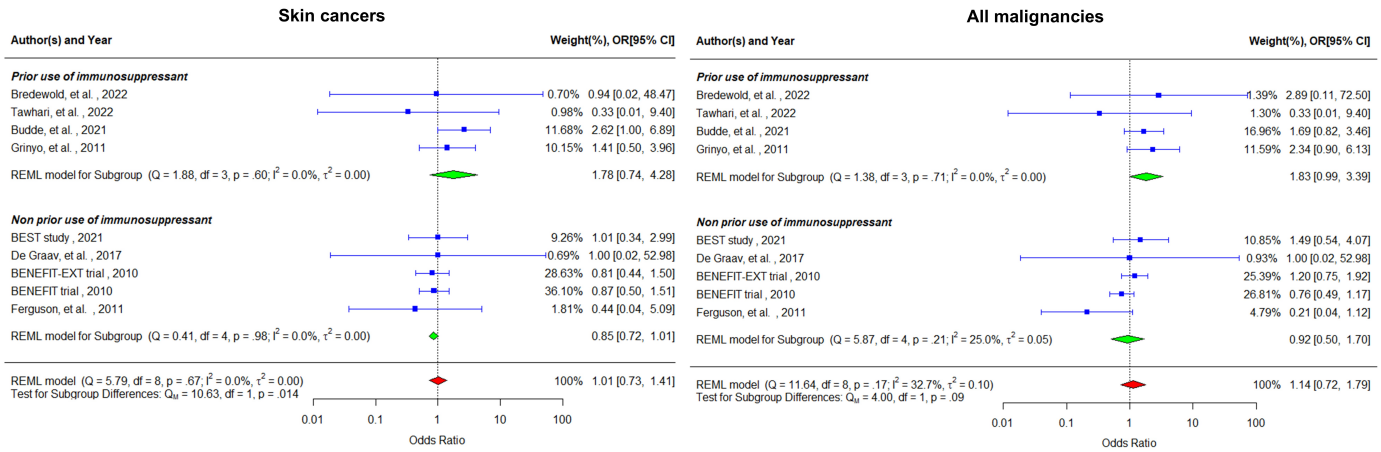
Conclusion:

Belatacept-based immunosuppression is associated with a similar risk of SCs and overall malignancy compared to CNI-based regimens. Prior CNI exposure significantly modified the effect of belatacept on skin cancer. Clinicians should be aware of the risk of SCs in belatacept conversion.



Meta-analysis stratified by prior immunosuppression



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