

Endoscopic Versus Open Treatment of Carpal Tunnel Syndrome: Postoperative Complications in Patients with Diabetes Mellitus

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Abstract : Objective: Patients with Type 2 diabetes (T2DM) often face higher postoperative complication rates. Limited data exist on outcomes in T2DM patients undergoing carpal tunnel release (CTR). This study aims to compare complication rates between endoscopic CTR (ECTR) and open CTR (OCTR) in patients with T2DM. Methods: This was a retrospective cohort study using the TriNetX database of 56741 patients with T2DM undergoing ECTR (N= 14,949) or OCTR (N= 41,792). Demographic data, medical comorbidities, and complication rates were analyzed. We used multivariable analysis to identify differences in postoperative complication rates between the two treatment methods in patients with T2DM. Results: Patients with T2DM undergoing ECTR had a significantly lower incidence of 90-day wound infection ($p < 0.001$), 90-day wound dehiscence ($p < 0.001$), and nerve injury ($p < 0.001$) when compared to patients who underwent OCTR. After matching, there was a significantly higher number of T2DM patients undergoing ECTR who had peripheral vascular disease ($p = 0.045$) and hypertension ($p = 0.020$) when compared to the OCTR group. These patients also had a lower incidence of fluid and electrolyte disorders ($p = 0.002$) and chronic blood loss anemia ($p = 0.025$). Conclusion: ECTR presents a superior choice for T2DM patients undergoing CTR, yielding significantly lower rates of wound infection, wound dehiscence, and nerve injury within 90 days post-surgery—reducing the risk by 31%, 48%, and 59%, respectively. These findings support the adoption of ECTR as the preferred method in this patient population, potentially leading to improved postoperative outcomes.

Keywords : endoscopic treatment of carpal tunnel syndrome, open treatment of carpal tunnel syndrome, carpal tunnel syndrome, postoperative complications in patients with diabetes mellitus

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