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Postoperative Complication Risks in Melanoma in situ Treated With Mohs Surgery or Wide Local Excision

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To the Editor,

Wide local excision (WLE) is the current standard of care for treatment of melanoma in situ (MIS).[1] Mohs micrographic surgery (MMS) is another surgical treatment used for MIS, offering benefits including circumferential margin control and the ability to operate in cosmetically and functionally sensitive areas.[1,2] Prior investigations comparing MMS and WLE for MIS have found similar overall survival.[3,4] However, current literature is limited on the comparable risks of postoperative outcomes between the two procedures. To bridge this gap in the literature, our study examined whether MIS patients treated with MMS have similar postoperative outcome risks to those treated with WLE.

Using the TriNetX Research Network (112 healthcare organizations), we stratified adult patients with ≥1 ICD-10-CM code for MIS (D03) into two cohorts: 1. MMS: ≥1 CPT code (17311-17315); and 2. WLE: ≥1 CPT code (11600-11646). Cohort index dates were defined as the date of the first MMS or WLE procedure, respectively. We 1:1 propensity score-matched cohorts on baseline demographics, MIS site, irradiation history, and potential comorbidities (malignant melanoma, nicotine dependence, alcohol related disorders, diabetes mellitus, overweight/obesity, chronic obstructive pulmonary disease) and medications (anticoagulants, platelet aggregation inhibitors, systemic corticosteroids, immunosuppressants). 30-day Cox proportional hazards models with 95% confidence intervals (CIs) were calculated to determine the risk of postoperative complications following MMS and WLE.

TABLE 1.

Risk of Postoperative Complications in Patients With Melanoma in Situ Treated With Mohs Micrographic Surgery (MMS) or Wide Local Excision (WLE)

Outcome	MMS	WLE	Hazard Ratio (95% CI)
	Number of eligible individuals[a] (outcomes)	Number of eligible individuals[a] (outcomes)	
Postprocedural hematoma and seroma	26175 (11)	26207 (57)	0.20 (0.10, 0.38)
Cellulitis and acute lymphangitis	24379 (62)	24493 (153)	0.42 (0.31, 0.56)
Skin graft complication	26224 (16)	26241 (36)	0.45 (0.25, 0.82)
Skin infection	23206 (207)	23560 (453)	0.47 (0.40, 0.56)
Wound hemorrhage	26088 (31)	26116 (63)	0.50 (0.33, 0.77)
Wound dehiscence	26159 (30)	26189 (45)	0.68 (0.43, 1.08)
Anesthesia of skin	24820 (19)	24962 (27)	0.72 (0.40, 1.30)
Follicular cyst formation	23870 (35)	24115 (34)	1.06 (0.66, 1.70)
Localized edema	24447 (52)	24622 (40)	1.34 (0.89, 2.02)

[a]All patients with the outcome of interest before the index date were excluded.

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After matching, both cohorts had 26,253 patients. Compared to WLE patients, MMS patients had a significantly decreased risk of hematoma and seroma (hazard ratio (HR) [95% CI] = 0.20 [0.10-0.38]), cellulitis and acute lymphangitis (0.42 [0.31-0.56]), skin graft complication (0.45 [0.25-0.82]), skin infection (0.47 [0.40-0.56]), and wound hemorrhage (0.50 [0.33-0.77]). No significant differences were observed in the risk of wound dehiscence, anesthesia of skin, follicular cyst formation, or localized edema (Table 1).

Our findings characterize postoperative outcome risks from MMS compared to WLE treatment for MIS patients. Although MMS and WLE for MIS have comparable overall survival, MMS offers procedural advantages, including en face margin assessment and same-day reconstruction.[1-4] Historically, preference for WLE has been a barrier to MMS treatment of MIS partly due to healthcare costs. However, postoperative complications associated with WLE may increase the number of visits and/or hospitalizations and thus increase total healthcare costs relative to MMS.[5] Study limitations include potential misclassification bias, retrospective design, and residual confounding. Overall, our study contributes to the literature supporting MMS as a viable surgical option for MIS treatment with potentially lower postoperative complication risks.

DISCLOSURES

Stanislav N. Tolkachjov MD is an investigator/speaker for CASTLE Biosciences, Kerecis, Boehringer Ingelheim, and Bioventus for work unrelated to the current submission. Christopher J. Thang MD has no conflicts of interest to disclose. David Garate MD has no conflicts of interest to disclose. Christopher Richter BS has no conflicts of interest to disclose. Mohamad Jabin MD has no conflicts of interest to disclose. Mojahed Mohammad K. Shalabi MD has no conflicts of interest to disclose. Thomas L.H. Hocker, MD has no conflicts of interest to disclose.

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