

Non-adherence of surgical treatment in patients with non-melanoma skin cancer: a retrospective cohort study

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INTRODUCTION



*Images retrieved from skin cancer. Org

- Non-melanoma skin cancers (NMSC) which include basal cell carcinoma (BCC) and squamous cell carcinoma (SCC) affect more than 3 million Americans per year.
- Surgical excision, electrodesiccation and curettage (ED&C), and Mohs micrographic surgery are common and effective surgical treatment options for non-melanoma skin cancer (NMSC) patients.
- Previous studies have looked at rates of adherence in recommended follow-up skin examination regimens for patients with skin cancers, but there is limited data on non-adherence for treatment modalities in these patients.
- Treatment non-adherence can lead to worse clinical outcomes and increased economic burdens. Thus, understanding the scope and reason for non-adherence to NMSC treatments is crucial to make effective interventions for patients.

AIMS & HYPOTHESIS

Aim:

To compare rates of non-adherence, find clinical and demographic factors associated with non-adherence, and identify barriers that prevent treatment adherence.

Overall Hypothesis:

Patients recommended surgical excision and ED&C will have lower non-adherence rates than those recommended Mohs surgery

METHODS

- **Study Design:** A retrospective cohort study of patients diagnosed with NMSCs by skin biopsy at Parkland Health and Hospital outpatient dermatology clinic between January 1, 2015-December 31, 2017.
- **Participants:** All adult patients with NMSC during the study period that were recommended surgical treatment (e.g. surgical excision, electrodesiccation & curettage (ED&C), Mohs surgery) were eligible. Patients were excluded if they had multiple NMSCs diagnosed at once with different treatment recommendations, sought treatment with outside provider, were incarcerated, or received non-surgical treatment. Reasons for non-adherence were categorized as: loss to follow up, social reasons, medical reasons, financial reasons, and other reasons not specified.
- **Statistical Analysis:** We performed univariate (chi-squared and fisher exact test) and multivariable logistic regression analyses to identify risk factors associated with non-adherence.

RESULTS

Patients referred for surgical excision and ED&C had a lower non-adherence rate of 3.4% compared to those referred to another clinic for Mohs surgery (11.4%) (p=0.006). Significant predictor variables for non-adherence were male gender and self-pay patients.

Variable	Total	Non-adherent, n (%)	Adherent, n (%)	P-value
Treatment recommended				0.006*
Surgical Excision & ED&C	147	5 (3.51)	142 (96.49)	
Mohs	280	32 (11.43)	248 (88.57)	
Sex				0.054
Male	260	28 (10.77)	232 (89.23)	
Female	167	9 (5.40)	158 (94.60)	
Payer				0.004*
Government	261	17 (6.51)	244 (93.49)	
Charity	60	2 (3.33)	58 (96.67)	
Commercial	14	2 (14.29)	12 (85.71)	
Self-pay	90	16 (17.78)	74 (82.22)	

*: Fisher exact test used.

** : Includes those only with single lesion (excludes 79 patients with multiple lesions)

Abbreviations: ED&C, electrodesiccation & curettage

Table 1. Univariate analysis of statistically significant risk factors for skin cancer treatment non-adherence

Multivariate logistic regression also showed that patients recommended Mohs surgery, males, and self-pay patients were more likely to be non-adherent.

Variable (Reference Group)	OR (95% CI)	P-value
Treatment Recommended (Surgical Excision & ED&C)		
Mohs	3.839 (1.435-10.270)	0.007
Sex (Female)		
Male	2.474 (1.105-5.542)	0.028
Insurance (Government)		0.009
Charity	0.505 (0.112-2.285)	0.375
Self-pay	3.050 (1.437-6.475)	0.004
Commercial	2.766 (0.548-13.962)	0.218

Abbreviations: ED&C, electrodesiccation & curettage

Table 2: Multivariable analysis of risk factors for skin cancer treatment non-adherence

Loss to follow-up was the most common reason for non-adherence.

Non-adherence category*	Total	Surgical Excision & ED&C	Mohs
Loss to Follow up	21		
Missed appointments	14	2	12
Missed phone calls	3	2	1
Miscommunication	4	0	4
Social Reasons	17		
Not in area	6	0	6
Homelessness	3	1	2
Medical literacy	4	3	1
Personal obligation	4	0	4
Medical Reasons	16		
Comorbidities	7	0	7
Cosmetic concerns	4	1	3
Previous skin surgery complications	3	1	2
Deceased	2	0	2
Financial Reasons	8	0	8
Other	2	0	2

Abbreviations: ED&C, electrodesiccation & curettage * : 20 patients have more than one reason for non-adherence

CONCLUSIONS

- Patients referred for surgical excision or ED&C had a lower non-adherence rate of 3.4% compared to those referred to another clinic for Mohs surgery. Both univariate and multivariate analysis showed that male gender and self-pay patients were significant predictors of non-adherence.
- Of the 37 patients who were non-adherent, loss to follow up (32.81%) was the most common reason for non-adherence, followed by social reasons (26.56%), medical reasons (25.00%), financial reasons (12.50%), and other reasons not specified (3.13%).
- Our data demonstrate there is a difference in non-adherence rates in surgical treatment of NMSCs, suggest that there are demographic factors associated with non-adherence, and highlight the need for future studies and initiatives to address reasons for non-adherence.

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