UNIVERSITY OF MISSOURI COLUMBIA

Recurrence rates of nonmelanoma skin cancer after malignant destruction: A single center retrospective analysis of 984 tumors.

Megan McClean[1], MD, Matthew Davis[2], BS, Ryan Ladd[2], BS, Calli Morris[2], BS, Jesse Hirner[1], MD, Nicholas Golda[1], MD

INTRODUCTION

Nonmelanoma skin cancer (NMSC) is the most common human malignancy with estimated treatment costs of $8.1 billion annually in the United States[1]. Malignant destruction (MD) is one very commonly used technique for treatment of these malignancies. In this study, we sought to assess differences in recurrence rates for NMSC treated with different malignant destruction techniques: electrodessication with curettage (EDC), cryotherapy with curettage (CC), curettage alone, and cryotherapy alone.

Figure 1: Squamous cell carcinoma

Figure 2: Basal cell carcinoma

MATERIALS AND METHODS

The study is a retrospective chart review of patients who underwent malignant destruction of nonmelanoma skin cancer. CPT code searches were used to identify patients undergoing treatment between January 2010 and May 2013 to allow for sufficient length of follow up to assess recurrence rates. Method of destruction, tumor information (including size, location, and subtype), and incidence of recurrence were all extracted from the medical record. Patient age, sex, and immunosuppresion status were also recorded.

RESULTS

984 tumors met our inclusion criteria. Mean follow up time was 1,435 days (range 2-3075). We compared recurrence rates based on subtype of tumor and found a trend toward increased risk of recurrence in aggressive BCC that did not reach statistical significance due to small sample size in that subtype (Table 1; p=0.4757). No significant difference in recurrence following use of each of the four modalities of MD was found (Table 2; p=0.8781). Destructions performed on the face had a 14.08% chance of recurrence, which was significantly higher than destructions performed elsewhere (p=0.032). There was no increased risk of recurrence in immunosuppressed patients, and no significantly different risk of recurrence between genders.

Type of NMSC		Number of Recurrences (%)
Squamous Cell Carcinoma	Low Risk: SCCis, KA, well and moderately differentiated (n=428)	35 (8.18%)
	High Risk: Poorly differentiated (n=1)	0 (0%)
Basal Cell Carcinoma	Low Risk: Nodular and Superficial (n=509)	44 (8.64%)
	High Risk: Aggressive (infiltrative or morpheaform) (n=6)	6 (16.67%)

Table 1: Recurrence rates after malignant destruction based on type of nonmelanoma skin cancer

CONCLUSIONS

This analysis demonstrates noninferiority of CC when compared to other methods of malignant destruction, but raises concern about the efficacy of malignant destruction as a treatment for facial NMSC.
Recurrence rates after destruction in this study fall within the range previously reported[2,3], thus indicating these data may be generalizable beyond our institution. Further, the analysis includes at least 20 different dermatologists; therefore, variations in technique from provider to provider are accounted for.

Method of destruction	Number of Recurrences (%)
Cryotherapy alone N=53	5 (9.43%)
Curettage alone N=236	22 (9.32%)
Curettage with cryotherapy N=174	10 (5.75%)
Electrodessication with Curettage N=521	48 (9.21%)

Table 2: Recurrence rates of nonmelanoma skin cancer based on type of malignant destruction

REFERENCES

1. Guy, G.P., Jr., et al., *Prevalence and costs of skin cancer treatment in the U.S., 2002-2006 and 2007-2011.* Am J Prev Med, 2015. **48**(2): p. 183-187.
2. Kuijpers, D.I., et al., *Surgical excision versus curettage plus cryosurgery in the treatment of basal cell carcinoma.* Dermatol Surg, 2007. **33**(5): p. 579-87.
3. Chren, M.M., et al., *Tumor recurrence 5 years after treatment of cutaneous basal cell carcinoma and squamous cell carcinoma.* J Invest Dermatol, 2013. **133**(5): p. 1188-96.

Figure 1 Gary M White, MD from RegionalDerm.com
Figure 2 Firnharber, J, https://www.aafp.org/afp/2012/0715/p161.html