Integration of the 40-Gene Expression Profile (40-GEP) for Management and Treatment of High-risk Cutaneous Squamous Cell Carcinoma (cSCC): A Real-world Algorithm

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Background

- The prognostic 40-gene expression profile (40-GEP) test has established both analytical and clinical improved validity for risk stratification when compared to current staging systems. The test categorizes patients as low (Class 1), moderate (Class 2A), or high (Class 2B) risk for regional or distant metastasis within 3 years of diagnosis.1
- Clinical utility studies of the 40-GEP test have demonstrated its appropriate use for the intended high-risk population, and its ability to direct personalized risk-aligned patient management while also increasing clinician confidence in treatment decisions.4-6

Methods

- Private practice Mohs surgeons who have utilized 40-GEP results for prognostication of high-risk SCC patients merged their risk-aligned management approaches into a singular algorithm focused on how to incorporate 40-GEP test results within the management guidelines proposed by the National Comprehensive Cancer Network (NCCN) (Figure 1).
- Real-world cases were compiled by the authors to evaluate the following treatment modalities: surveillance imaging, sentinel lymph node biopsy (SNLB), adjuvant radiation therapy (ART), and clinical follow-up.

Cases Presentations

<table>
<thead>
<tr>
<th>Clinical-pathologic risk factors</th>
<th>Case Report 1</th>
<th>Case Report 2</th>
<th>Case Report 3</th>
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<tbody>
<tr>
<td>Case Report 1</td>
<td>74-year-old male, 2.2 cm diameter, moderately differentiated Located on the left posterior scalp</td>
<td>&gt;90-year-old male, 3.1 cm diameter, moderately differentiated Located on left central lateral neck</td>
<td>63-year-old male, &gt;2 cm diameter, invasion beyond subcutaneous fat Located on head region</td>
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<td>Case Report 2</td>
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<td>Case Report 3</td>
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Figure 1. Treatment algorithm for incorporation of 40-GEP test results into treatment decisions for a high-risk cSCC patient

- Patient diagnosed with primary invasive cSCC and one or more risk factors
- Due to complexities in patient’s clinicopathologic risk factors, clinician decides further assessment is needed

Conclusions

- For high-risk cSCC patients, whose management is currently broad under existing guidelines, clinicians can identify risk-aligned treatment pathway improvements by use of the 40-GEP within their existing clinical practices.
- One such algorithm to incorporate the 40-GEP is presented here as a mechanism to implement guideline recommendations for personalized management of patients based on their risk for poor outcomes.

References

1. Wysong, et al.JAAD 2021
9. NCCN v.2021

Disclosure

SG is a consultant for Castle Biosciences Inc. (DBA). AS is an advisor for DBA and Regenmed. SNT declines no relevant conflicts of interest. The authors have no other relevant affiliations or financial involvement with any organization or entity with a financial interest in or financial conflict with the subject matter or materials discussed in the manuscript.

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