Transcript Details
This is a transcript of an educational program. Details about the program and additional media formats for the program are accessible by visiting: https://reachmd.com/programs/practical-dermatology-updates-in-skin-cancer/using-gene-expression-profiling-to-personalize-cutaneous-scc-management/54653/

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Using Gene Expression Profiling to Personalize Cutaneous SCC Management

My name is Gaurav Singh. I'm a Mohs surgeon and a dermatologist at City of Hope Comprehensive Cancer Center in Chicago.

I've been using the 40-GEP, or gene expression profile, test for cutaneous squamous cell carcinoma for about five years now. I see many cases of high risk cutaneous squamous cell carcinoma every year. And what we know about patients with cutaneous squamous cell carcinoma is sometimes their tumors can be worse than they initially appear, and sometimes patients with high risk features and high stage tumors can actually have a better outcome than we might initially think. I'll give you some examples that have stood out to me over the years. I've had cases of patients with a very small, well-differentiated cancer in an otherwise healthy patient with a healthy immune system that actually ends up metastasizing despite a good surgery and good outcomes, and we can't really get to the bottom of exactly why that occurred.

Going back, gene expression profiling can be helpful in these patients. We know that there's something unique about the tumor biology of that patient and that's where gene expression profiling plays a role. I'm not advocating for gene expression profiling on every single low stage tumor but what the data shows, including in a JAAD review from this year that looked at 1,500 patients with metastatic SCC that were Stage 1, T1 at diagnosis, actually found that there are other risk factors that portend a bad outcome. Those include tumors on the head and neck, moderately differentiated tumors, tumors invading to the fat and not just beyond the fat, and tumors that are otherwise Stage 1. I found the gene expression profile test to be helpful in those Stage 1 patients that we otherwise miss.

And if their GEP result comes back high risk, I will refer them for adjuvant radiation. If their GEP result comes back higher risk and not the highest possible risk, I increase surveillance. And sometimes that can include getting circulating tumor DNA, sometimes that can include getting some imaging. And sometimes that can include closer clinical monitoring. For example, every three months instead of every six months.

Furthermore, a lot of my practice is patients that are known to be high risk. For example, they are T3 tumors that are perhaps poorly differentiated. Sometimes we see very large tumors that are deeply invasive and tumors that are wrapping around the nerve. In these tumors, a series of questions often comes up, which is, what is the role of adjuvant radiation?

Now I follow ASTRO guidelines so if a tumor is poorly differentiated and has perineural invasion, we will discuss and try to have radiation done for the patients after surgery. However, in my clinical practice, what I found is a lot of patients with these really "bad tumors" often don't want to have radiation. Perhaps they're farmers from central Illinois and they don't want to seek care multiple times a week. Now we can lower the number of treatments they receive and do what's called hypofractionated radiation, but it's still often an undue burden for patients.

How I've used the GEP test to help these patients who are known to be high risk of recurrence and high risk of metastasis is to make the decision about radiation. If the GEP result comes back as a highest risk, we encourage the patients to truly consider follow-up and truly have radiation. In some cases where the patient is persistent about perhaps not having adjuvant radiation, a low risk GEP result in an otherwise high risk tumor can lead to avoiding radiation, again, in the right clinical aspect.

What I've done in my practice and what's helped me over the last several years is finding low stage tumors that are actually higher risk than they appear, and there's an increasing amount of data in the JAAD and other places as well for this, and also seeing what else needs to be done for the high risk tumors. We sometimes can deescalate care and sometimes, if the GEP result is higher risk, we can order some imaging like a routine CT scan that would otherwise not have been considered.

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The gene expression profile result for a cutaneous SCC can be Class 1, Class 2A, or Class 2B. Class 1 patients have a baseline metastatic event rate of about 5%, the Class 2A patients have about a 20% risk, and the Class 2B patients have about a 45% to 50% risk. Now we can further risk stratify patients based on not just their class result but also the stage of the tumor. I often combine the GEP result with the AJCC stage or with the Brigham and Women stage to get an accurate risk for the patient in front of me.

Now what that means is all of our patients get multidisciplinary care, and depending on the exact tumor and the exact patient, we have different thresholds for when additional things can be considered. For example, radiation might be considered at about a 10%, 20%, or a 30% risk of metastasis. Having these results allows us to make individualized decisions for our patients. In the era of precision medicine where we want to do the right thing for the right patient at the right time, GEP is a great adjunctive tool that helps us make the right decisions for patients along with staging.

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