Streamlined workflow for tumor board preparation, presentation, and documentation allows for concurrent clinical trial matching review

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Abstract

Background: Newly diagnosed and recurrent cases of head and neck cancer are discussed during weekly multi-disciplinary tumor boards at Robert H. Lurie Comprehensive Cancer Center of Northwestern University (Chicago, IL). Case preparation and presentation at tumor board is an opportune time for consideration of clinical trial eligibility. Given that initiation of treatment can discount a patient for clinical trial eligibility, systematic review and consideration of eligibility status for treatment trials open at the institution during tumor board review ensures that all treating clinicians are aware of and agree to support the patient's consideration of treatment trial enrollment.

Goals: To systematically consider newly diagnosed and recurrent head and neck cancer cases for eligibility for treatment clinical trials open at the treating institution during multi-disciplinary tumor board meetings.

Solutions and Methods: A new artificial intelligence-based technology was piloted to aid the preparation, presentation, and documentation of tumor board case review. Implementation of the technology streamlined the tumor board workflows and allowed time for the screening, consideration, and documentation of clinical trial eligibility concurrently with tumor board review. Cases presented at tumor board were considered for 12 treatment trials open for head and neck cancer at the treating institution. Trial eligibility was recorded within the new tool for presentation. Documentation of the tumor board discussion then captured clinical trial consideration and recommendation based on the multi-disciplinary review.

Outcomes: From July 25, 2022 to March 13, 2023, a total of 32 tumor boards were prepared, presented and documented using the new technology. During this time 267 cases were reviewed, which represented 210 unique patients. Of the 210 patients, 34 (16%) were screened eligible for at least one open treatment clinical trial at the treating institution. There has been high user satisfaction reported with the new technology which allowed additional time for clinical trial eligibility screening.

In calendar year 2022, a total of 11 patients were enrolled in head and neck cancer treatment trials. With the new technology in place and completely operational since the beginning of the year, there has been 6 patients enrolled in the first quarter of 2023. Assuming similar accrual over the next 3 quarters, this results in an expected year-end total accrual of 18-24 patients, an increase of 160-220% over the prior year.

Lessons Learned and Future Direction: Systematic review of newly diagnosed and recurrent patients for clinical trial eligibility during tumor board review can give patients optimal opportunity for participation. Future expansion of the new technology to also assist with trial eligibility evaluation is planned. In addition, the tool will in the future provide aggregate reports that capture and track trial consideration over time.

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Methods

Pilot of the technology began in June 2022 for the head and neck cancer weekly tumor board at Robert H. Lurie Comprehensive Cancer Center of Northwestern University (Chicago, IL). All tumor boards were prepared, presented and documented using the pilot system. Case consideration for open trials was noted, when appropriate, in the case details for presentation.

Data on all the tumor boards was available in the pilot technology and retrieved for analysis and summary. This analysis included cases presented during tumor boards from July 25, 2022 to May 15, 2023.

This project was undertaken as a Quality Improvement project and as such does not constitute human subjects research.

Results

From July 26, 2022 to May 15, 2023, a total of 16 trials were open during the review timeframe. (Table 1) During this period 45 tumor boards were conducted with the new software. In total 334 case reviews representing 264 unique patients were presented. Of these 45 cases were considered suitable for clinical trial consideration. After final eligibility and consent, 12 patients were enrolled in a clinical trial. A summary of the patients reviewed in the tumor board during this time is provided in Table 2.

The new process has increased the number of patients considered and ultimately enrolled in clinical trials. Further studies of the impact of workflow improvements on trial consideration and enrollment are needed to validate the findings.

Results (con't)

Table 2. Summary of patient characteristics for all unique patients presented

Patient Characteristics	N (%)
Age	
Mean (Min, Max)	64 (27, 100)
Identified Sex	
Male	188 (72%)
Female	75 (28%)
Cancer Location	
Nasopharyngeal	32 (10%)
Oropharyngeal	196 (59%)
Laryngeal	35 (11%)
Salivary Gland	2 (1%)
Thyroid	4 (1%)
Unknown primary (w/wo neck node)	37 (11%)
Other (skin, face, eye, ear, etc.)	26 (8%)

Conclusions

- Tumor board review is an optimal time to consider clinical trial eligibility.
- Efforts to decrease administrative burden for clinical teams can facilitate expanded efforts for trial accrual.
- Additional approaches to use artificial-intelligence for clinical trial eligibility review has the potential to further improve site trial enrollment.
- Additional study is needed to also understand the role of trial availability, COVID affects, and provider interest on clinical trial enrollment.

Table 1. Trials considered during tumor board review. (Trial titles provided below for reference.)

Trial	Cancer Focus	Treatment Focus	Trial	Cancer Focus	Treatment Focus
1.	Oropharyngeal	Locally advanced, HPV mediated	9.	HNSCC	Recurrent, Second primary
2.	Salivary Gland	Metastatic, recurrent, AR positive	10.	Sarcoma, Melanoma	Any
3.	Oral Cavity	Early stage	11.	Thyroid Cancer	Locally advanced, Metastatic
4.	HNSCC	Recurrent, Refractory, Metastatic	12.	Oropharyngeal	HPV mediated
5.	HNC, Melanoma	Locally advanced, Metastatic, Recurrent, HPV mediated	13.	Oropharyngeal	Early Stage, HPV mediated
6.	HNC	Locally advanced, Metastatic	14.	Nasopharyngeal	Locally advanced, Metastatic
7.	HNSCC	Recurrent, Metastatic	15.	HNSCC	Locally advanced, Metastatic
8.	HNC	Locally advanced, Metastatic, Recurrent	16.	Salivary Gland	Recurrent, Metastatic

Trial Titles

1. Testing Immunotherapy Versus Observation in Patients With HPV Throat Cancer
2. Androgen Deprivation Therapy (ADT) and Pembrolizumab for Advanced Stage Androgen Receptor-positive Salivary Gland Carcinoma
3. Comparing Sentinel Lymph Node (SLN) Biopsy With Standard Neck Dissection for Patients With Early-Stage Oral Cavity Cancer
4. The BURAN Study of Buparlisib in Patients With Recurrent or Metastatic HNSCC
5. BiCaZO: A Study Combining Two Immunotherapies (Cabozantinib and Nivolumab) to Treat Patients With Advanced Melanoma or Squamous Cell Head and Neck Cancer, an immunoMATCH Pilot Study
6. Testing the Addition of Ipatasertib to Usual Chemotherapy and Radiation for Stage III-IVB Head and Neck Cancer
7. Testing the Addition of an Anti-cancer Drug, Ipatasertib, to the Usual Immunotherapy Treatment (Pembrolizumab) in Patients With Recurrent or Metastatic Squamous Cell Cancer of the Head and Neck
8. Testing the Addition of an Anti-cancer Drug, BAY 1895344, With Radiation Therapy to the Usual Pembrolizumab Treatment for Recurrent Head and Neck Cancer
9. Testing What Happens When an Immunotherapy Drug (Pembrolizumab) is Added to Radiation or Given by Itself Compared to the Usual Treatment of Chemotherapy With Radiation After Surgery for Recurrent Head and Neck Squamous Cell Carcinoma
10. Phase 2 CAB-AXL-ADC Safety and Efficacy Study in Adult and Adolescent Patients With Sarcoma
11. Vudalimab for the Treatment of Locally Advanced or Metastatic Anaplastic Thyroid Cancer or Hurthle Cell Thyroid Cancer
12. A Randomized Phase 2 Study of Cemiplimab ± ISA101b in HPV16-Positive OPC
13. De-intensified Radiation Therapy With Chemotherapy (Cisplatin) or Immunotherapy (Nivolumab) in Treating Patients With Early-Stage, HPV-Positive, Non-Smoking Associated Oropharyngeal Cancer
14. Individualized Treatment in Treating Patients With Stage II-IVB Nasopharyngeal Cancer Based on EBV DNA
15. Testing Docetaxel-Cetuximab or the Addition of an Immunotherapy Drug, Atezolizumab, to the Usual Chemotherapy and Radiation Therapy in High-Risk Head and Neck Cancer
16. Nivolumab and Ipilimumab in Treating Patients With Metastatic/Recurrent ACC of All Sites and Non-ACC Salivary Gland Cancer