The Importance of Individualized Prognostic Indicators

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Short Commutation

Once initial diagnosis is made, key to adequate cancer treatment is prognosis determination. Many malignancies' high mortality rates are due largely in part to their late presentations, and subsequently, late discoveries. Early diagnosis may help lead to earlier treatment, and thus, improved survival. However, while this is true, once diagnosis is made, the type of treatment path to pursue will have major consequences for both the patient and his/her family. This is particularly true for recurrent malignancies, where the 5-year survival rate is typically significantly lower than primary occurrences. Although salvage surgery offers a potential cure for patients with recurrent disease, recommending surgery is a complex decision due to the associated personal costs and economic burden. It is therefore critical this decision be based on available evidence and discussions with patients regarding their treatment should be replete with hard data as opposed to vague generalities. This will allow patients to make more informed decisions, and thus hopefully, decisions more in-line with their personal goals and wishes. One study performed at our institution looked at prognostic indicators for recurrent sinonasal malignancies, a previously unexplored area [1]. Prior to this investigation, prognostic research had focused exclusively on primary presentations. Though this information can be used as a guide, we believed it to not be individualized enough for our recurrence patients. We therefore examined common prognostic indicators to understand their importance for recurrence patients. Similar to primary sinonasal malignancies, histology, grade, and invasion of key structures (e.g. orbit, cavernous sinus, cranial nerves and clivus) were significantly associated with decreased survival. This would be expected as all of these may represent a more aggressive oncologic subtype, thus reducing survival percentage. Interestingly, we found stage, intracranial invasion (+/- brain involvement), cervical metastases, and N-stage did not affect outcome. This may be because their contributions were outweighed by other relevant factors, or they may just not be as important for recurrences as they are for primary malignancies. In a similar study from our institution, Kim et al. [2] investigated prognostic factors for 1-year survival following salvage surgery for head and neck Squamous Cell Carcinomas (SCC). Again, though good data exists regarding primary occurrences, little work had been done in the way of examining recurrent SCCs. Unlike the recurrence study investigating sinonasal malignancies, this study found stage to be significantly associated with death at less than one year following surgery. This demonstrates how important it is to identify individualized prognostic indicators for particular patient populations. If we do not use more unique indicators, we may follow an inappropriate treatment algorithm. In the sinonasal prognostic indicator study, we therefore proposed a unique algorithm for this very specific population [1]. Improved technologies may help further our ability to accurately assess patient prognosis. Though not Otolaryngology-related a study done with New York University Langone Medical Center examined various biomarkers concentrations in knees of patients with and without recent Anterior Cruciate Ligament (ACL) tears [3]. Investigators were searching for differing concentrations, particularly of inflammatory markers, which may be the ultimate cause of the high rate of post-traumatic osteoarthritis following ACL tears, even in patients that have received adequate ACL reconstruction. This accepted study uncovered several markers that differed between injured patients and controls, possibly establishing a biochemical causes for this previously unexplained phenomenon. Moreover, in the future, the hope is to determine if concentrations of these biomarkers may correlate with patient prognosis, allowing for completely individualized assessment. In our oncologic fields, similar work is being performed, and identifying unique markers with concentrations correlating to prognosis would prove eminently important for our patients' ability to make well-informed decisions. In the case of recurrence, salvage surgery is widely considered patient's best chance for survival, but it can be associated with Cancer treatment is pain, suffering, and lengthy rehabilitation and is typically the most expensive component of a patient's medical charges. It is therefore of the utmost importance to determine which patients will derive the most benefit from such a surgery, and which would be better served receiving more palliative measures. Future work should continue to investigate patient-specific prognostic

indicators and hopefully provide both physicians and patients with the most accurate outlook possible.

References

1. Kaplan DJ, Kim JH, Wang E, Snyderman C. Prognostic Indicators for Salvage Surgery of Recurrent Sinonasal Malignancy. Head Neck Surg. 2016; 154:104-112.

2. Kim J, Kim S, Albergotti WG. Selection of Ideal Candidates for Surgical Salvage of Head and Neck Squamous Cell Carcinoma: Effect of the Charlson–Age Comorbidity Index and Oncologic Characteristics on 1-Year Survival and Hospital Course. JAMA Otolaryngol Head Neck Surg. 2015.