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Future of Staging

Cancers in the head and neck area are staged at the outset to measure the volume and extent of disease, to facilitate selection of treatment, assess prognosis, and to compare outcomes of therapy. Pierre Denoix introduced the concept of TNB staging in 1940s, which was later adopted by the UICC and AJCC., and that has remained as an integral part of tumor staging till today. In designing a staging a staging system four factors must be considered, i) Complexity,ii) Discrimination, iii) Compliance and iv) the 5% rule. Over the years, the AJCC and UICC have worked together to refine the staging system periodically introducing new and meaningful parameters to improve the accuracy and predictive power for prognosis, leading to the 8th edition of the staging system published in 2016.

However, the current system is not adequate, because, it considers only gross tumor factors, and does not include pathological features, functional status of the region involved or the patient, other patient factors such as comorbidities and life style such as smoking and alcohol consumption. In addition, the system is “Static” and only reflects the state of the tumor at initial diagnosis, and it also does not include “response to therapy”, all of which are important factors impacting on outcome and prognosis.

In order for the “Staging” to be meaningful, it should include all the factors, mentioned above, and it should be personalized for each patient, and it should be “dynamic” to reflect the “current” status of the disease, along the patient’s journey with the disease during his or her lifetime. This can only be achieved with “Dynamic personalized prognostic nomograms”, created for each individual and updated on a regular basis. A modern medical nomogram will be a statistical prognostic model, which can be produced as a graphical hard copy or can be seen on a computer or smart phone based calculator. It will have the ability to estimate individualized risk, will be user friendly, will incorporate continuous variables, and will be better than clinician judgment in estimating disease course.

Several examples will be shared pointing out the deficiencies of the current staging system and the proficiency of “Personalized, dynamic prognostic nomograms” which will be the future of head and neck cancer staging.

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癌症分期的未来

头颈部癌症从一开始就要进行分期，以测量疾病的体积和范围，便于选择治疗方法、评估预后和比较治疗效果。皮埃尔-德努瓦（Pierre Denoix）在 20 世纪 40 年代提出了 TNB 分期的概念，后来被 UICC 和 AJCC 采用，直到今天仍是肿瘤分期不可或缺的一部分。在设计分期系统时，必须考虑四个因素：i) 复杂性；ii) 鉴别性；iii) 服从性；iv) 5% 规则。多年来，AJCC 和 UICC 共同致力于完善分期系统，定期引入新的、有意义的参数，以提高预后的准确性和预测能力，最终于 2016 年发布了第八版分期系统。

然而，目前的系统还不够完善，因为它只考虑了肿瘤的大体因素，并不包括病理特征、受累区域或患者的功能状态、患者的其他因素（如合并症）以及生活方式（如吸烟和饮酒）。此外，该系统是 "静态 "的，只反映了最初诊断时的肿瘤状况，也不包括 "对治疗的反应"，而所有这些都是影响结果和预后的重要因素。

为了使 "分期 "具有意义，它应考虑上述所有因素，并应针对每个患者进行个性化分期，而且应是 "动态 "的，以反映患者在其一生中的疾病 "当前 "状况。 要做到这一点，就必须为每个人创建并定期更新 "动态个性化预后图"。现代医学预后图是一个统计预后模型，可以制作成图形拷贝，也可以在电脑或智能手机计算器上看到。它能够估算个体化风险，用户界面友好，包含连续变量，在估算病程方面优于临床医生的判断。

我们将分享几个例子，指出当前分期系统的不足之处，以及 "个性化动态预后图 "的能力，这将是头颈癌分期的未来。