Controversies in the New TNM Staging System

Peter Goldstraw

The latest revision of the International System for Staging Lung Cancer was published in June 1997\(^1\). It contained several changes to the previous system issued in 1986\(^2\). These were:

- The division of Stage I into IA (T\(_1\)N\(_0\)M\(_0\)) and IB (T\(_2\)N\(_0\)M\(_0\)).
- The division of Stage II into IIA (T\(_1\)N\(_1\)M\(_0\)) and IIB (T\(_2\)N\(_1\)M\(_0\)).
- The shift of T\(_2\)N\(_0\)M\(_0\) from Stage IIIA to Stage IIB.
- The designation of satellite nodules within the primary lobe as T\(_4\).
- The designation of additional pulmonary nodules in ipsilateral lobes other than that of the primary as M\(_1\).

These revisions were discussed at an International Workshop on Intrathoracic Staging sponsored by the IASLC and held at the Royal Brompton Hospital in London in October 1996\(^3\). Many of those attending this workshop expressed reservations about the new revisions. There were specific comments regarding some of the changes, and delegates presented data to support other changes that did not feature in the latest revision. There was concern that the database used for the revision remained the original one compiled by Mountain, with the addition of a relatively small number of cases from the NCI Lung Cancer Study Group on whom there was only limited clinical staging information. Most delegates were surprised to find that the revisions had become finalised and immutable without any input from the IASLC. As a result, the IASLC as its World Conference in Dublin created an International Staging Committee under the joint chairmanship of myself and Bob Ginsberg, to prepare a submission from the IASLC for the next revision. I am delighted that your President has agreed to join this committee and that there will be major input from the Japan Lung Cancer Society.

The subject of this talk will focus on the comments I have so far received, from the International Workshop and since, concerning perceived deficiencies in the latest revision, both the errors of commission and those of omission. I would ask that if there are any additional points that anyone would like to make to the committee that they write to me with their suggestions and their statistical support.

Head of Thoracic Surgery, Director of Surgery,
Royal Brompton Hospital, LONDON, UK.
Errors of Commission

a) Many feel that the division of Stage I into IA and IB, and Stage II into IIA and IIB was unnecessary. Whilst the survival prospects for the subsets may differ significantly this has no effect on treatment decisions. In addition the use of this subdivision for this purpose may have restricted its future use for more significant changes.

b) The shifting of the T,N,S subset into Stage IIB is based upon the good prognosis of patients who have had surgical resection for tumours with invasion of the lateral chest wall. Those patients who are not treated surgically cannot expect such a good prognosis, and there is little evidence that patients undergoing resection for tumours defined as T3 due to other descriptors, such as invasion of the diaphragm, mediastinal pleura or pericardium, enjoy such a good prognosis. In particular patients with true Pancoast tumours can only expect such good survival prospects if they are exceptionally young and fit and their tumours are unusually localised. It might have been preferable to have refined the T3 descriptors.

c) The decision to designate satellite lesions within the lobe of the primary tumour T4 seems harsh and arbitrary. No statistical support was offered for this decision. The UICC have previously ruled that such nodules should upstage the tumour by one T stage\(^5\). Other authors have suggested that satellite nodules in the primary lobe should be designated T3\(^5\), a suggestion supported by other data\(^6,7\).

d) There is general support for the designation of lung nodules in the contralateral lung and within the ipsilateral, non-primary lobe(s) as M1 disease. However this will have to be revisited as our ability to differentiate multiple primary tumours is improved by molecular techniques.

Errors of Omission

Several large databases, mostly from Japan, have suggested other refinements to the TNM Staging System, and these were not considered in the latest revisions.

a) Many refinements to the T classification have been suggested. Your President has put forward a convincing argument that T stage should recognise tumour sizes other than \(<3cms\) and \(>3cms\). His data shows that tumours \(>5cms\) have a worse prognosis than those between 3 and 5cms\(^6\). He has also pointed out the difficulty in differentiating invasion of the mediastinum, and other T4 descriptors such as invasion of the great vessels or oesophagus, from invasion of the mediastinal pleura alone (T3).

Other authors\(^8\) have made a plea for T4 tumours to be further divided into T4.1 and T4.2 on the basis that some may become resectable after induction therapy, and hence have a better prognosis than those which are considered inoperable. No statistical evidence was presented to support this suggestion, and the separation of T4.1 from T4.2 seemed to be largely based upon the greater readiness of these authors to resect the SVC and left atrium than to resect the oesophagus.

b) Suggestions regarding improvements to N staging have been numerous and are fraught with claims and counterclaims. Many factors identified as important in one study have been contradicted or received no support when looked at in other studies. The conclusions of these discrepant studies may have arisen because of inter-observer differences in the technique of systematic nodal dissection—the extent of dissection...
and the allocation of some nodes to one station or an adjacent station, but undoubtedly are restricted by the relatively small size of individual databases.

There have been discussions regarding the prognostic importance of individual nodal stations, principally the midline nodal stations, #3 and #7. Watanabe has shown that patients with #3 involvement have a worse prognosis than those with other stations involved, including #7, a factor confirmed by Mountain. One of your distinguished former Presidents, Dr. Naruke, found #7 nodal involvement had an adverse prognostic impact. Whilst this has received some support, our study did not find this significant. Some authors suggest that involvement of the high paratracheal nodal stations has an adverse effect on prognosis, others have not confirmed this. Some reports suggest that the nodes around the aortic arch and sub-aortic window have less impact on survival, but this too is not supported. There is thus no common acceptance that any one node or nodal station is particularly important. From our present limited databases, the only factors which receive general support and are uncontested are: a) involvement of a single nodal station has less impact on the prognosis after complete resection than the involvement of multiple nodes, in several stations, at more than one level, b) increasing T factor compounds the adverse prognosis of N2 disease, c) patients who are found at surgery to have "unexpected N2" disease and in whom complete resection is possible have a better prognosis and higher resection rate than those whose N2 disease was detected preoperatively by CT scanning or mediastinoscopy, and that c) complete resection is the only surgery that offers any survival advantage.

As nodal dissection is becoming more detailed, attention is turning to N2 nodes. This was evident in our discussion in London, and resulted in the term "systematic nodal dissection" being preferred to any existing descriptions, such as "mediastinal nodal sampling", which considered only N2 nodes. We are coming to appreciate that N1 disease is also a spectrum, and we need to address this in any new nodal chart. No doubt the present discussions on N2 disease are already featuring in our consideration of a refined N1 classification.

The work of the IASLC International Staging Committee has only just begun. It is certain that if all of these suggestion were included, any future revision would be immediately criticised by workers with contrary views and with other recommendations. If we are to have any input into the next revision of the International System for Staging Lung Cancer the IASLC Staging Committee must take measures to:

a) Agree a common, Internationally accepted definition of complete resection.
b) Agree a common term for the intra-thoracic re-evaluation of lymph nodes prior to resection. The term "Systematic Nodal Dissection" received general support at the workshop in London.
c) Agree a uniform technique for the dissection and the minimum number of nodes or nodal stations to qualify as a thorough evaluation.
d) Recommend a standard for the histological processing and reporting of such nodes. There have been reports showing that the use of immunohistochemical stains will improve the detection of micro-metastases within lymph nodes. A study from our Institution suggests however that this is
merely the result of more careful sectioning of lymph nodes). There remain doubts as to the relevance of this costly addition to our laboratory services.

e) Create a nodal chart, which will be internationally accepted, sufficiently detailed to cover existing mediastinal nodal stations without ambiguity and to incorporate and clarify N1 stations. We must be imaginative and consider the role of 3-dimensional techniques such as computer assisted design software, and perhaps rethink whether the oncological midline should be shifted to the left side of the trachea to resolve the position of those nodes lying in the anatomical midline.

References


f) Create an independent, pooled database, against which the suggested amendments to the staging system can be tested and validated. Data presented at the London Workshop suggests that we could develop a database of over 10,000 patients.

I hope I have already given credit to the enormous contribution made by Japanese scientists in this field. I hope your representatives can count on the support of the Japan Lung Cancer Society and its members in the work of the IASLC International Staging Committee. We hope to present our first report at the next World Conference to be held in Tokyo in the year 2,000.


