sociations between a single entity and other associated disease and risk factors are less likely to be noticed, when the entity is not studied as a seperate tumour type. Clinical relevance is not limited to tumour prognosis.

Finally, the main issue of clinical importance is the distinction between reactive or benign mesenchymal lesions on the one hand, and sarcomas on the other. Overdiagnosis and underdiagnosis of soft tissue sarcomas are both very serious problems, which result from the rarity and "worrisome" appearance of some sarcoma simulators, and from the deceptively "indolent" appearance of some sarcomas. It is the avoidance of such misinterpretations of soft tissue lesions which calls for a detailed knowledge of the many soft tissue entities that have been identified and documented.

Is there not place for sarcoma grading at all? There is. The points raised above are only intended to argue that proper tumour typing should be the basis of the evaluation. When this has been achieved, grading can, and should, be used as an *adjunct* in the assessment of several sarcoma types [10–13], based on various paramaters. Some sarcoma types are always high grade. Since it is now clear that the biological behaviour of sarcomas varies according to histological tumour type, and that the significance of mitotic activity and (absence of) necrosis varies in different types of sarcoma [13], there is no place for grading systems which bypass tumour type. Sarcoma grading can never replace sarcoma typing, and in my opinion, any move in that direction should, therefore, be actively discouraged.

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# *Arbiter:*

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I FIND myself in the difficult position of being the arbiter between two authors who do not disagree! Daugaard argues for the broad-based value of grading in assessing the prognosis of soft tissue sarcomas, whilst Mooi points out the primary importance of histological typing, arguing that in some cases the type is a good indicator of likely behaviour whereas grade can be misleading. However, both authors acknowledge that each parameter has its place in clinical prognostication and in trial analysis, and that there is an interplay between the two, a view with which I agree.

As an aside, it is remarkable that these traditional approaches remain the most useful tools and that they have not been supplanted by newer techniques such as ploidy measurements, proliferation indices, oncogene expression, etc. Of course, such methods may eventually supplant classical histology, but in the meantime we should attempt to refine and adapt existing traditional grading systems and to define more precisely how they relate to histological type.

Difficulties exist because of the rarity of soft tissue sarcomas coupled with the wide range of histological subtypes. Thus, clinical studies tend to report on, at most, 200–300 cases and usually these are made up of many histological subtypes and sometimes even include visceral sarcomas along with soft tissue tumours. In these circumstances, the impact of a particular grading system on individual histological subtypes is impossible to determine statistically—only the overall picture can be assessed. There is a need to examine systematically the effectiveness of current grading

systems when applied to pure histological types and whether there is a case for adapting them to take account of the peculiarities of those types.

Large numbers of well-documented cases in which pathology has been rigorously reviewed are needed for such an exercise and only cooperative groups, such as EORTC, are likely to be able to accumulate such large series. Questions to be addressed could include:

- What is the prognostic value of histological type as opposed to grade in the commoner sarcomas? (i.e. a resolution of the Daugaard/Mooi debate).
- Does the simplified grading system proposed by van Unnik and associates [1] remain valid in a larger series and for individual histological subtypes?
- Are the Trojani parameters (differentiation, necrosis, mitotic rate) appropriate and applicable for individual sarcoma types? If so, can they be made more effective by tailoring them to the individual type e.g. by applying variable weighting adjusted to the peculiarities of those types. An example might be to adjust the banding of mitotic scores by determining whether some subtypes tend to have higher overall mitotic rates than others and to determine meaningful bands on that basis.
- Can a prognostic index be devised for soft tissue sarcomas which is comparable to that developed in Nottingham for mammary carcinoma [2]? Such an index might be based on histological subtype and grade, along with other factors such as size, site, adequacy of surgical margins etc., and as such, would be a refinement of the AJC (American Joint Committee) staging system [3].

Such an exercise would demand a major investment in terms of time and organisation for pathology reviews and statistical analysis. In addition, it would require considerable good will and commitment from contributing pathologists and clinicians. It may be that the EORTC is uniquely well placed to organise such a study.

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