LETTERS TO THE EDITOR

My purpose in analyzing the work of others is to draw attention to areas where there is too little emphasis, and hopefully to encourage more investigators to enter the fertile field of establishing clinical efficacy.

It should be pointed out that many previous clinical studies were ended after a test in question demonstrated pathology. The correlations of results of a particular test with pathologic findings in selected patients is insufficient.

As an example, the physician is not interested in a report correlating the liver-scan findings with anatomic changes in a wide variety of diseases, but rather how often liver scans reliably reveal otherwise undetectable metastases from carcinoma of the colon or carcinoma in general, thereby justifying a modification in his therapeutic approach.

Too often investigations have stopped short of the goal: improvement in the care of patients. Investigations relevant to patient care are not difficult to design, but they require a clear grasp of the clinical problems. The selection of subjects for study must be such that a hypothesis can be properly tested.

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REFERENCES


A DIGITAL RATEMETER SYSTEM FOR RECTILINEAR SCANNING

In their Preliminary Note (1) Simmons, Hunkar, and Kereiakes describe how the use of a digital ratemeter avoids the degradation of the overall frequency response which results from the exponential response of an analog ratemeter. The authors then go on to observe that in practice the two instruments “show little discernible difference in scan quality.” They fail to observe that this result was predictable because they used analog ratemeter time constants and digital ratemeter averaging times which were so short that the resulting distortions were, in any case, negligible.

It can be deduced from the information provided by the authors that the space constants, i.e., the product of analog ratemeter time constant and scan speed, they used were about 0.05 cm. This is typical of the values employed in conventional bidirectional scanning and is dictated primarily by the need to avoid undue “scalloppling,” i.e. relative displacement between successive scan lines.

We have found that when this limitation is removed by unidirectional scanning (2) and arrangements are made for the photoscan and colorscan displays to be dependent only upon the ratemeter output by operating them at a constant pulse rate, space constants of 0.5–1.0 cm can be used without losing the ability to resolve objects of about 1 cm diam. Larger objects can then be visualized with greater certainty because of the much improved statistics. The optimum choice of space constant involves a compromise similar to that involved in the choice of collimator resolution, which is in most cases in the region of 1–2 cm (full width at half height). The use of finer resolution than this does not generally result in better diagnostic information because of the worsened statistics.

If Simmons et al (1) were to extend their investigations to larger values of analog ratemeter space constant and digital ratemeter averaging interval than those described in their Preliminary Note, they might well demonstrate that the advantages for the digital ratemeter they predict on theoretical grounds do result in appreciably improved scans. We feel that such an investigation would be of value because the result would provide guidance for others who might be encouraged to invest in this fairly expensive modification.

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REFERENCES


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