

Book reviews

PROGRESS IN NUCLEAR MEDICINE: Vol. 1—Neuro-Nuclear Medicine By E. J. Potchen and V. R. McCready. (Pp. 430; illustrated; £13.10.) Karger: Basel. 1972.

The book begins with a long chapter on the imaging process employing radioisotopes and the factors governing the choice of an instrument for brain scanning. This chapter has obviously been written with the specialist in view and will not be understood readily by readers not totally involved in scintigraphic investigations. However, for the specialist it does provide an up to date review of current thinking concerning the assessment of the performance of rectilinear scanners and scinticameras. In a book at this level, one would have hoped that the use of the word 'scanning' to describe the scinticamera process would have been strongly discouraged. The word 'scintiphotography' first used by Anger would seem an adequate description.

The next chapter outlines mainly a statistical method for analysing scans with reference to a pattern of uptake based on averaging counts from several normal lateral views and by comparing counts in symmetrically placed areas in the anterior and posterior views. The results presented are for 197 Mercury-chloromerodrin scans and it is inferred that similar results might be obtained with 99m Technetium scans which are now more commonly carried out. The author of the chapter claims that this type of analysis would be advantageous with equivocal scans which form about 10% of the total of investigations carried out.

A useful description of the biological behaviour of 99m Tc is included and this is followed by an excellent chapter on the anatomy of the normal brain scan. The presentation of this chapter is very good and provides a wealth of information in an easily digestible form.

The anatomy and physiology of the blood/brain barrier is briefly described and the authors of the chapter on brain scan anatomy have written another excellent account of the principles involved in brain scan interpretation.

A chapter on the clinical utility of brain scanning suggests that only the area beneath the detector to a depth of 5 in. or so is examined. With many scanning detectors, the plane of best focus is 5 in. from the detector, but radiation is detected from areas nearer

and further away from this focal plane. For example, it is not uncommon, when the plane of best focus is set on the mid-line of the brain and one lateral is performed, to see 'shine through' from a lesion beyond the focal plane in the contralateral hemisphere. The acceptance of the idea of a depth threshold in this manner could be very misleading. In addition, it is difficult to appreciate the argument that, since it is advantageous to view skull radiographs of a patient who has had a brain scan, that it is necessary to integrate brain scanning with the neuroradiological service of a hospital. Indeed, as with many other hospital problems, this would seem to suggest that a multi-disciplinary approach would provide a better solution.

Two chapters on the cerebrospinal fluid discuss, in a concise manner, the present understanding concerning fluid formation and circulation and the radioisotope techniques used in the assessment of pathways.

The final chapter deals with the measurement of cerebral blood flow using radioisotopes. It outlines neatly the problems and inaccuracies associated with non-invasive methods. However, it perhaps skims too lightly over the problems of applying the intracarotid injection technique in general clinical practice and fails to make a comparison between the information that can be useful clinically and that which is required for academic research purposes. Some non-invasive techniques such as the Xenon inhalation method have not been adequately assessed in routine clinical practice. Comparison of Xenon inhalation results with the often used intracarotid injection initial slope flows will depend on the accuracy of the deconvolution procedure. The argument concerning the place of the gamma camera in cerebral blood flow studies is confusing. The authors admit that the use of 32 and 35 detectors is in excess of what is necessary, but later in the chapter criticize the use of the Anger camera because, due to dead time limitations, it cannot resolve 35 brain regions adequately. Many workers do not consider it necessary for their purposes to investigate more than 12 to 16 regions.

This is a first class book for the specialist in radioisotope techniques applied to neurology and neurosurgery as it brings together in one volume the views held currently in a wide spectrum of topics.

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