Letters to the Editors

followed.

The state that these are catalogues these reagents are used in of Practice should be followed in use.

Historic laboratory apparatus

The photograph shows a paraffin lamp; the coil-like objects on top are hollow, cone-shaped receptacles of copper which fit closely into one another. This paraffin lamp was found in an old laboratory in Valetta, Malta, where, at the beginning of this century, much of the research work that led to the discovery of the Micrococcus melitensis (now called Brucella melitensis)

in the blood of the goat took place under the aegis of the Commission for the Investigation of Mediterranean Fever.

Happily, this old laboratory has now been restored (25 June 1980) by the expert and devoted work of the eminent Maltese medical historian, Dr Paul Cassar, who would appreciate very much the views and suggestions of your readers as to what could possibly be the nature and uses of this ancient? DIY item of laboratory equipment.

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Reference

1 Safety in Pathology Laboratories, Department of Health and Social Security 1972 Dd 908649 K200 5/72 (8967) HMSO, 1972:44.

Stability of heparin in intravenous fluids

Administration of heparin by continuous intravenous infusions has been shown to be as effective as intermittent intravenous injection in the treatment of thromboembolism, but major bleeding is a more frequent complication with intermittent injection of heparin than with continuous infusion. Nevertheless, reports that heparin may be unstable in intravenous fluids continue to cast doubt on constant infusion being the optimal method of administration. Jacobs et al. and Okuno and Nelson, using different assays of heparin, reported a loss of its potency in commonly used intravenous fluids, even within a few hours, and measurements with anti-Xa assay apparently showed erratic behaviour. These observations require confirmation since they carry significant implications regarding heparin administration in the management of venous thromboembolism.

The stability of heparin in intravenous fluids has been re-examined using four assays which measure most known aspects of heparin activity. The activated partial thromboplastin time method, the protamine sulphate titration technique, the metachromatic assay, and an anti-Xa assay were used, and details of these methods have been reported previously. Heparin (mucous) from Allen and Hanbury’s (Glaxo Australia) batch No. 251324 (5000 units/ml) was used in these studies; 5 ml of heparin was added to 1 litre glass bottles of saline, 5% dextrose (Abbott Laboratories), and Hartmann’s solution (Travenol Laboratories). It was found that the initial volume of fluid in these bottles ranged from 1001 to 1069 ml (± 1 ml). Thus the final concentration of heparin was 24 ± 1 units/ml. The bottles were stored at room temperature (22 ± 2°C), and samples were removed with a syringe as required.

As can be seen from the Table, no loss was detected in the potency of heparin in intravenous fluids for up to 24 hours by either the chemical or biological assays. Contrary to the suggestion of Okuno and Nelson, sensitivity of the method of assay was found to have no relation to the stability of heparin. In a separate series of experiments, the pH was monitored continuously with a strip-chart recorder connected to a Radiometer PHM61 pH meter.

Potency of heparin in intravenous fluids with time as a percentage of the initial potency

<table>
<thead>
<tr>
<th>Intravenous fluid</th>
<th>pH after heparin addition</th>
<th>Time after heparin addition (hours)</th>
<th>Anti-Xa assay</th>
<th>Protamine sulphate titration</th>
<th>Metachromatic assay</th>
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<td>Hartmann’s solution</td>
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Results are the mean of six measurements. The pH of the final mixture did not show a change with time.
and no drift in pH was detected over this period. It seems relevant that heparin has been shown to remain stable over a pH range of 2.0-9.0.

Our findings are in agreement with those of others that heparin is stable in intravenous fluids under clinical conditions. Hence the administration of heparin by continuous intravenous infusion should not be regarded as a suboptimal method on this account.

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References

Book Reviews


This little book is basically the proceedings of a Symposium on Primary Intracranial Neoplasms originally sponsored by the Brooklyn Unit of the American Cancer Society. The first chapter is a useful review of experimental models of neoplasia in the central nervous system, and this is followed by several clinically orientated chapters including computed tomography. The next chapter is a reasonably well illustrated account of the electron microscopy of brain tumours, and then there is a very brief, poorly illustrated review of the cytological diagnosis—mainly CSF cytology—of brain tumours. The final chapters deal with surgical treatment and chemotherapy.

There is really not very much in this book for general pathologists. The symposium was, however, organised to provide a review of present knowledge concerning the biological behaviour, diagnosis, and treatment of primary brain tumours. It is a brief review that probably achieves its aim, and doctors in various disciplines with an interest in primary brain tumours may well find it useful reading.

JH ADAMS


This book was written to meet the demand for authoritative and integrated information on the interpretative aspects of clinical chemistry tests. There are over 1300 pages covering a wide range of subjects written by authors of international repute. Topics that are particularly well covered include enzymes, liver function, inborn errors of metabolism, neurogenic amines, and cancer. Chapters on nutrition, parenteral therapy, and paediatric biochemistry would have added to its value.

The absence of reference ranges in a number of chapters reduces its diagnostic value as a reference book in a number of clinical situations. The title is misleading and perhaps one such as 'The Clinical Chemistry of Disease' would make a greater impact on our medical colleagues who would benefit from the information in this book.

The binding is poor and the price of £38.25 is beyond the pocket of most students. Nonetheless, it fills a much needed gap, and I recommend it to both medical and departmental libraries and to those who can afford it.

BM SLAVICEVIC


This book forms one of a postgraduate pathology series and is intended for pathologists in training and for pathologists and nephrologists investigating renal disease, particularly those working in isolation. The book is a departure from the large and increasing number of textbooks on renal pathology in that it emphasises the authors' interests in those aspects of renal pathology concerned with microscopic techniques, morphometric studies of age changes in the kidney, malignancies, and renal abnormalities associated with metabolic diseases. There is however adequate coverage of other conditions likely to be encountered in everyday nephrological practice. The authors have an easy style of writing, and the book is well illustrated. At the end of each chapter there is a long list of references. In future editions it would be desirable for these to be reviewed, and many of the older references could be omitted without much loss. The final chapter deals with microdissection and immunofluorescence techniques. This book will form a useful addition to the library of those interested in renal pathology.

JR TIGHT


The selection and interpretation of chemical investigations are of great importance to newly qualified doctors who should develop a critical approach to the request for such tests. The foundations for this approach must be laid in the teaching of medical studies in the clinical