Publications of the Staff of the Henry Ford Hospital and the Edsel B. Ford Institute for Medical Research
Published by the Staff
of the Henry Ford Hospital and the Edsel B. Ford Institute for Medical Research

Titles and Selected Abstracts

Edited by G. B. Bluhm, MD


Comparative study of chromatographically purified α- and β-collagen fractions of normal and amino nucleoside-nephrotic rat skin collagen reveals that both the rate and extent of reactivity of such fractions with the highly specific and sensitive carbonyl reagent, N-methyl-benzothiazolone hydrochloride (MBTH), are diminished in skin collagen from the aminonucleoside-treated rats. Mechanistically this might be explained either by (a) an inhibitory effect of aminonucleoside on the initial step in the formation of a type of collagen cross-linking, involving enzymatically catalyzed oxidative deamination of the ε-amino group of lysyl and/or hydroxyllysyl residues in the collagen chains to their respective semi-aldehyde residues; or (b) by direct interaction of aminonucleoside with the semi-aldehyde groups, thus effectively reducing their reactivity with MBTH. Elimination of the latter from consideration would seem to be indicated, however, by the absence of any of the identifying spectral characteristics of the aminonucleoside in skin α- and β-collagen of aminonucleoside-treated rats, as well as in spectra of exhaustively dialyzed normal rat skin α-collagen which had been incubated for several hours with aminonucleoside. Correlation of the diminished carbonyl reactivity with possible inhibitory effects of aminonucleoside on a specific skin lysyl oxidase activity has not yet been accomplished. Evidence suggesting in vitro inhibitory effects of aminonucleoside on chick embryo cartilage lysyl oxidase activity has been obtained, however, by a modified monoamine oxidase assay. Incubation of cartilage extracts, which contain lysyl oxidase activity (demonstrated by tritium release from [6-3H]-elastin substrate), with 10-3 M aminonucleoside prior to assay, in a system utilizing lysine-vasopressin as a substrate, resulted in a considerable reduction in the production of hydrogen peroxide, measured by a sensitive fluorometric procedure.


Two dosage schedules of BCNU were used in treating 91 patients with far-advanced breast cancer. Of 66 evaluable patients, 36 received 100 mg/m² for 2 days every 6 weeks; 13/36 responded. Thirty patients received 50 mg/m²/wk x 6 wks; 6/30 responded. Mean response duration and survival for both groups was six months or less. The best responses were seen in patients with skin metastases (11/21 patients). No significant differences were observed between the two regimens in toxic effects, response rate, duration of response, or survival.
Abstracts


The problem of parathyroid hormone resistance was originally brought into focus with the description of pseudohypoparathyroidism by Dr. Fuller Albright. The subject has held a fascination for physicians interested in the parathyroids ever since. The original description by Dr. Albright can now be enlarged to include selective parathyroid hormone resistance at either the skeleton or renal tubule alone, or in combination. This results in a number of possible syndromes with parathyroid hormone resistance, including: 1) the classic form of pseudohypoparathyroidism; 2) hypocalcemia, normophosphatemia and parathyroid hyperplasia, without osteitis fibrosa; 3a) steatorrhea, hypocalcemia, hyperphosphatemia with osteitis fibrosa; 3b) steatorrhea, hypocalcemia, hyperphosphatemia without osteitis fibrosa; 4) pseudohypoparathyroidism with osteitis fibrosa (hyperparathyroidism), pseudohypohyperparathyroidism (renal resistance to parathyroid hormone with osteitis fibrosa); and 5) renal osteodystrophy. These various forms of parathyroid hormone resistance are classified, depending upon whether the hormone resistance occurs at either the osteocyte or osteoclast in the skeleton, or whether it occurs at the renal tubule, either singularly or in combination.


The correlation of basic science to the clinical problems of metabolic bone disease was particularly emphasized at the Symposium and is reflected in this volume. It is a compendium of about 128 presented papers and exhibits together with the discussions, including questions and answers, which followed each paper. Methods and techniques in the diagnosis of metabolic bone disease, including microradioscopy, radiogrammetrics, photon beam absorption densitometry, neutron activation, chemical determinants in metabolic bone diseases, and the significance of urinary cyclic AMP and alkaline phosphatase are all reviewed. The section on morphologic and kinetic approaches to bone considers the quantitative approach to bone morphology, classic histology, bone cell counting, microradiography, tetracycline labeling and radiokinetics. There are additional sections on calcitonin in clinical medicine, as well as interrelationships between parathyroid hormone and calcitonin. Current concepts in the metabolism of vitamin D and immunoassay of parathyroid hormone are covered. Other sections contain papers on parathyroid bone disease, osteoporosis, rickets and osteomalacia, unusual forms of metabolic bone disease, renal osteodystrophy, methods in bone densitometry and interrelationships between parathyroid hormone and vitamin D.


Combination chemotherapy (mechlorethamine, vincristine (Oncovin), procarbazine, and prednisone, given the acronym, MOPP) produced a complete remission rate of 66% in 178 patients with Stages III and IV Hodgkin's disease. Patients in complete remission were randomly allocated either to (a) continuation of MOPP treatment every two months for a total of 18 months (maintained remission) or to no further treatment (unmaintained remission). Whether plotted from time of randomization or from end of MOPP treatment, the relapse rate was significantly less in patients in maintained remission. Three quarters (75%) of the maintained patients were in complete remission three years after the start of the study as compared with a little less than half (46%) for the unmaintained patients.
Abstracts

There was no difference in overall survival at four years between the maintained and unmaintained complete remission patients. The probable explanation for the lack of difference in survival is that patients who received only six courses of MOPP and subsequently relapsed had an excellent chance of reentering complete remission on retreatment with MOPP whereas patients who were treated with 24 months of MOPP therapy and who relapsed on treatment were no longer responsive to MOPP.


Forty consecutive patients underwent mitral valve replacement with viable aortic valve homografts. Viability was assessed by autoradiography in a sample of the aortic wall of the graft at the time of insertion. Sixty to 75% of the fibroblasts were found to be metabolically active. All patients were in New York Heart Association Functional Class III or IV prior to operation. Pulmonary hypertension was present in 37. One patient died in the hospital, and 1 late death occurred nine months postoperatively. Anticoagulants were discontinued six weeks after operation without thromboembolic complications. Thirty-six of the patients showed marked clinical improvement, and only three patients were found to have a mild degree of mitral regurgitation by angiography. This experience has encouraged us to continue with this method of mitral valve replacement.


Donor cells, passively carried over in the vasculature of transplanted organs, are an important immunogenic factor. In order to lower the dose of antigen released by the graft, a method of removing the majority of passenger blood cells in the dog’s donor heart prior to transplantation is described. The efficacy of the technique was assessed by radioactive tagging of the red cells with Cr$^{51}$, In situ perfusion of dog hearts with acellular solution under physiologic pressures and flows removed over 95% of the passenger cells without impairing the function of the organ.


An elderly woman with longstanding rheumatoid arthritis and myasthenia gravis, treated with both systemic and intraarticular corticosteroids, presented with Candida guilliermondii infection superimposed on chronic rheumatoid synovitis of her right knee. This was successfully controlled by surgical debridement (synovectomy) and stabilization of the joint with cross-pins, leading to a painless fibrous ankylosis. The unusual organism, apparent chronicity of the infection and ultimate success of the surgical treatment are features of this unusual case.


The authors report that selective arteriography has been a valuable and safe tool in revealing extravasation of blood in the bowel lumen, though it has not been so helpful in upper GI hemorrhage except in patients with periodic bleeding. Diverticulosis of the colon accounts for most massive lower GI bleeding in the older patients. Sigmoidoscopy should
Abstracts

be utilized when lower GI bleeding is probable and the patient is stabilized. Barium enema studies will help locate the diverticula, and the point of bleeding may be localized by selective arteriography. The authors believe that lower GI hemorrhage calls for a firm diagnostic approach.


Hemorrhage is the most common life-threatening manifestation of peptic ulcer in the elderly patient. Prompt evaluation by esophagogastroscopy and barium x-ray examination is of paramount importance in proper management. Perforation of peptic ulcer is less common. When diagnosed, it requires immediate surgical treatment. Pyloric obstruction should be suspected in a patient with chronic nutritional depletion, superimposed acute dehydration, electrolyte imbalance and even shock. Nasogastric decompression of the dilated stomach and re-establishment of fluid and electrolyte balances should be attended to before carrying out definitive surgical treatment. Geriatric patients tolerate major surgery relatively well, but only if special attention is given to associated medical and metabolic abnormalities.


A survey to determine the incidence of hepatitis and Australia antigenemia among laboratory workers was carried out among the members of the ''Hepatitis Scientific Memoranda.'' Fifty-one laboratories with 731 personnel in the United States of America (USA) and 38 laboratories with 883 personnel in foreign countries responded. Of the 89 laboratories, 70 reported to be research; 26 clinical; 24 blood bank; 12 renal unit; and 16 other functions. Some laboratories indicated two or more functions. The incidence of hepatitis (icteric and anicteric) among laboratory workers was 7.4% in the USA and 5.2% for all countries outside the USA. Australia antigenemia among laboratory workers was 2.5% in the USA and 2.7% in foreign countries. The combined rates of 6.2% in clinical hepatitis and 2.6% in Australia antigenemia reported in this letter survey were higher than those reported among normal populations. Since 16 of the laboratories (18%) conducted no laboratory tests for anicteric hepatitis among their personnel, the incidence of hepatitis could be higher. Sixty-seven of the 89 laboratories (75%) in this survey were working with hepatitis-infected materials without inactivation before handling and 41 of the 89 (46%) indicated no form of decontamination after handling infected materials. The survey points up the need for: (a) periodic examinations of laboratory personnel employing all available tests for anicteric hepatitis, and (b) sterilization of hepatitis-infected materials before and after technical handling. Suggestions are made regarding sterilization of infected materials before handling.


White cell response to trauma, or to antigen in the absence of specific antibody, consists of macrophages, monocytes, and neutrophils present locally in tissue. In a subject with prior exposure to antigen, this response is augmented by immunologically competent lymphocytes. The balance between immune-competent and immune-neutral cell types provides an index to the quality of host defense mechanisms. With use of sequential timed coverslip preparations on skin windows, the resistance status of ten burn patients was examined. Moderate burns showed no immunodepression. Severe burns displayed uniform deletion of immune-competent cell elements, and variable depression of nonimmune cell migrations.
Abstracts


Undecalcified tetracycline labeled rib biopsies of seven patients with clinical primary hyperparathyroidism and proven adenoma of the parathyroid glands were examined histologically to study the bone remodeling effects of parathyroid hormone. Unexpectedly wide variations of the static and dynamic bone remodeling data in this group of clinically similar patients was found. Explanations for this conduct still remain highly speculative.

Listed by title only:


Errata — page 103, Summer 1973, Vol. 21, No. 2

In "Limitations on calculation of dose based on number of fractions", an abstract by L. A. DuSault and P. Maximuke. The sentence reading "Comparing a clinical investigation of treated carcinoma of the lip with out laboratory investigation of treated adenocarcinoma . . ." should be corrected to read "Comparing a clinical investigation of treated adenocarcinoma of the lip with our laboratory investigation of treated adenocarcinoma . . ." Editor's note: It should not be implied that no laboratory investigation was performed to obtain the results.