

6-1966

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Recommended Citation

(1966) "Abstracts," *Henry Ford Hospital Medical Bulletin* : Vol. 14 : No. 2 , 220-226.

Available at: <https://scholarlycommons.henryford.com/hfhmedjournal/vol14/iss2/14>

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ABSTRACTS

Observations on rat kidney mitochondrial adenosine triphosphatase activity during induction of aminonucleoside nephrosis. P. Bartlett,* T. Tsujimoto, and H. Schaefer. *Life Sci.* 4:1509-1514, 1965.

Kidney mitochondrial ATPase activity, assayed in the presence and absence of a variety of activating ion agents, has been determined at several time intervals during the course of induction of aminonucleoside disease in the rat. In terms of cation transport, the most significant finding would seem to be an elevation in the multiple-cation-activated (i.e. $Mg^{++} + Na^{+} + K^{+}$) kidney mitochondrial ATPase induced as early as the 4th day of treatment of rats with aminonucleoside. Possible implication of multiple-cation-activated kidney mitochondrial ATPase in cation transport is discussed.

Effect of hyocholic acid on cholesterol and bile acid metabolism in the mouse. W. T. Beher,* D. Baker, W. L. Anthony and D. G. Penney. *Proc. Soc. Exp. Biol. Med.* 116:442-445, 1964.

Hyocholic acid effectively prevented accumulation of dietary cholesterol in mice fed diets supplemented with cholesterol but had little or no effect on tissue cholesterol concentrations in mice fed normal diets. Treating mice with antibiotics largely reversed the effect of hyocholic acid, and permitted the accumulation of dietary cholesterol in hyocholic acid-treated mice. It was demonstrated that the hypocholesteremic effect is probably mediated by hyodeoxycholic acid, which arises from the action of intestinal bacteria on hyocholic acid. In animals which received hyocholic or hyodeoxycholic acid, cholic acid disappeared from the bile acid spectrum of the small intestine. Treatment with antibiotics restored cholic acid to the bile acid spectrum of hyocholic acid-treated mice but not to that of hyodeoxycholic acid-treated mice.

The effect of pituitary and thyroid hormones on bile acid metabolism in the rat. W. T. Beher,* M. E. Beher,* and G. Semenuk.* *Metabolism* 15:181-188, Feb. 1966.

Bile acid synthesis and bile acid pool turnover rates and sizes were determined in normal (N), thiouracil-treated (TU), hypophysectomized (H), and thyroid-treated hypophysectomized (TH) female albino rats. Thiouracil treatment lowered the rate somewhat: N, 3.4 mg/day; TU, 2.2 mg/day. Hypophysectomy reduced the rate to less than one third of normal: H, 0.96 mg/day. Five mg/day desiccated thyroid increased bile acid synthesis of hypophysectomized rats to 1.2 mg/day — still far below normal. Since bile acid pool sizes per 100 Gm body weight were similar in the groups (N, 9.66 mg; TU, 6.80; H, 9.39; TH, 9.59), these changes in synthesis were due largely to changes in pool half-life (N, 3.7 day; TU, 4.0; H, 8.8; TH, 6.5). It was concluded that hypophysectomy retards bile acid metabolism by decreasing end-product turnover rates. The effects of hypophysectomy differ from those of thiouracil-hypothyroidism, and moderate thyroid treatment does not restore steroid turnover or synthesis rates to normal. Thus other factors than lack of thyroid seem to cause the changes in steroid metabolism effected by hypophysectomy.

*From Edsel B. Ford Institute for Medical Research.

ABSTRACTS

Towards a more meaningful nomenclature of the various types of hypertension. J. R. Caldwell and I. J. Voudoukis. *Canad. Med. Ass. J.* 93:919-920, Oct. 23, 1965.

In the clinical evaluation of every patient with hypertension, the physician should try to determine the cause or causes of the high blood pressure, describe the characteristics of the blood pressure levels and make an estimation of the severity of the cardiovascular-renal disease. If these three items are taken into consideration in the diagnostic terminology, the diagnosis amounts to an intelligible summary of the principal findings and is much more valuable than the simple terminology "arterial hypertension", or worse yet, "essential hypertension". All patients with a basal diastolic blood pressure above 90 mm Hg are designated as having "established diastolic hypertension" and those with basal diastolic blood pressure below 90 mm Hg as having "intermittent diastolic hypertension". Since prognosis for survival is worse in those with an established diastolic hypertension, basal blood pressure determinations should be used in describing blood pressure levels. Such criteria for these two main types of hypertension apply regardless of the cause or causes of the blood pressure elevation or the extent and severity of the cardiac, cerebral and renal vascular disease. This comprehensive diagnostic nomenclature yields quick information useful in medical management of patients with hypertension.

Urinary excretion of ingested α -aminoisobutyric acid-N¹⁵ in dogs treated with growth hormone or corticotropin. H. C. Choitz* and O. H. Gaebler.* *Proc. Soc. Exp. Biol. Med.* 121:346-349, 1966.

The rate of urinary excretion of ingested α -aminoisobutyric acid-N¹⁵ (AIB) was determined in dogs, in control experiments and during treatment with growth hormone or corticotropin. Growth hormone had only a slight effect, while corticotropin increased the rate of excretion somewhat, particularly during the second six-hour period after ingestion. Apparently changes in absorption, distribution, and excretion play only a minor role in growth hormone action, while corticotropin directly affects one or more of these processes in addition to its effects on protein metabolism and gluconeogenesis. None of the N¹⁵ ingested as AIB appeared in urinary urea or ammonia.

Characteristics of cystic fibrosis in adults: a report of seven patients. E. O. Coates, Jr. *Dis. Chest* 49:195-205, Feb. 1966.

Chief diagnostic clues observed in seven cases of adult cystic fibrosis were: characteristic roentgen appearance associated with bronchographic signs of "bronchitis"; recurrent staphylococcal infection of the respiratory tract; evidence of diffuse airway obstruction in the absence of bronchial asthma. Symptoms of pancreatic insufficiency were mild or absent in 4 of 5 patients who had laboratory evidence of intestinal malabsorption. Spontaneous prolonged remission of symptoms and a relatively benign course occurred in one instance. The inability of a fibrocystic patient to conserve sweat chloride during administration of desoxycorticosterone or salt deprivation was confirmed, and provides another useful diagnostic test for disease.

Tetracycline fluorescence in squamous cell carcinoma. H. J. Donsky. *Arch. Derm.* 92:388-393, Oct. 1965.

Thirty-three patients suspected of having squamous cell carcinoma of the skin were studied to evaluate the systemic administration of tetracycline compounds as a screening test for malignancy. The results of this study confirm the affinity of tetracyclines for tumor tissue and indicate that the systemic administration of these compounds is a reliable and reproducible technique for the detection of squamous cell carcinoma of the skin. However, the value of this procedure remains limited since the tumor must be superficially located in the skin in order to demonstrate fluorescence.

*From Edsel B. Ford Institute for Medical Research.

ABSTRACTS

Magnitude and location of cortical bone loss in human rib with aging. B. N. Epker, M. Kelin and H. M. Frost. Clin. Orthop. 41:198-203, July-Aug. 1965.

It may be concluded that in ribs from normal people: (1) there is a so-called physiologic osteoporosis; (2) this begins to develop after the third decade; (3) its direct cause is progressive enlargement of the marrow cavity at the expense of cortical thickness; (4) periosteal bone apposition does not stop at skeletal maturity but continues throughout life, as originally suggested on the basis of the same kind of material but on a different group of subjects; (5) neither the periosteal nor the cortical endosteal envelopes ever *decrease* in size; and (6) intracortical porosity does not play a significant role in the physiologic osteoporosis of ribs that occurs with aging.

Replacement of the intrapericardial aorta for dissecting aneurysm with aortic regurgitation. T. Gahagan and H. Drake. Mich. Med. 64:642-645, Sept. 1965.

Two patients were treated for severe acute aortic valve regurgitation caused by dissecting aneurysm of the intrapericardial aorta. In both patients, replacement of the ascending aorta with a dacron prosthesis after resection of the diseased aorta was sufficient to restore competence of the aortic valve. It was not necessary to replace the aortic valve in either patient.

Suggested sequential mode of control of changes in cell behaviour in adult bone remodelling. R. Hattner, B. N. Epker and H. M. Frost. Nature 206:480-490, May 1, 1965.

Evidence of a relationship between resorptive and formative cellular activity in adult bone is reported. It was obtained by evaluating the order in which individual bone formation processes occur with respect to individual bone resorptive processes. The evaluation is based on the properties of bone, and of bone-remodelling activity. Inspection of the contours of bone surfaces and of cement lines reveals whether resorption has or has not occurred there previously.

Treatment of Pseudomonas keratitis in rabbits. P. C. Hessburg, J. P. Truant and W. P. Penn. Amer. J. Ophthal. 61:49-54, Jan. 1966.

Colistin and polymyxin-B have shown the greatest promise in *in vitro* studies against Pseudomonas, and this promise seems to have been borne out clinically. Either colistin sulfate 100 ug/ml or polymyxin-B 100 ug/ml (by continuous or intermittent delivery) is more efficacious than saline. Colistin sulfate 1,000 ug/ml is significantly better than colistin sulfate 100 ug/ml. The difference between sulfacetamide 1,000 ug/ml and normal saline is not quite significant. Colistin sulfate 1,000 ug/ml combined with sulfacetamide 1,000 ug/ml is not significantly better than colistin sulfate 1,000 ug/ml alone.

Prolonged intra-arterial therapy for advanced pelvic malignancy. C. P. Hodgkinson and C. R. Boyce. Cancer 18:1536-1543, Dec. 1965.

Nineteen females suffering from far-advanced pelvic malignancy were treated by prolonged infusion chemotherapy of the internal iliac arteries over periods as long as 76 days. Although 2 patients additionally received infusions of 5-fluorouracil, all received methotrexate by continuous infusion and folinic acid (citrovorum factor) by intermittent systemic administration. In addition, all patients received concomitant antibiotic therapy to protect against infection. The technique involved placing the catheters into the arteries under direct vision. The infusion apparatus was energized by a semiportable electric rotary pump. Except for minor difficulties the equipment functioned satisfactorily although its bulk rather limited the patient's activities. Because of extensive malignant disease in one patient, an attempt to place the catheters was not successful. Currently, this treatment must be classified as palliative. Although detailed and highly complicated, it is practical and promising. There is strong need for a more effective drug.

ABSTRACTS

Bone turnover and osteogenesis imperfecta. S. Jett, J. R. Ramser, H. M. Frost, and A. R. Villanueva. Arch. Path. 81:112-116, Feb. 1966.

Two adult women with osteogenesis imperfecta were labeled twice with a tetracycline antibiotic and had the anterior end of the 11th rib removed at biopsy. Undecalcified cross sections were made. By fluorescence microscopy, the percent of the cortical bone that lay between the two labels was measured. This was converted by computation to the percent of the cortex replaced by new bone per year, assuming the measurements made were representative. The bone formation rates were more than three times faster than normal, proving that there was no general, cellularly inherent inability to make new lamellar bone in these two women.

Respiratory control in kidney and liver mitochondria isolated from rats treated with the potent nephrotogenic aminonucleoside of puromycin. C. C. Johnston and P. Bartlett.* Biochem. Pharmacol. 14:1231-1236, 1965.

Rates of oxygen uptake of kidney mitochondria from normal and aminonucleoside-nephrotic rats have been determined by means of an oxygen electrode. The rates of oxygen uptake in state 3 (as defined by Chance and Williams) were lower for nephrotic rat kidney mitochondria than for normal kidney mitochondria. This change suggests that kidney mitochondrial enzymes from aminonucleoside-nephrotic rats may be decreased in amount, activity, or accessibility. It is also possible that mitochondria from aminonucleoside-nephrotic rats are less capable of maintaining structural integrity, and thus are damaged more during the isolation procedure. When livers of nephrotic rats were used as the source of mitochondria, impairment of respiratory control was not observed but, in fact, respiratory control ratios were higher than those of normal rat liver mitochondria. Respiratory rates were also obtained by preincubating normal kidney and liver mitochondria with aminonucleoside. No pronounced effect of aminonucleoside upon normal rat kidney mitochondria was observed *in vitro*.

The surgical treatment of left ventricular aneurysms. C. R. Lam, H. Gale, and E. Drake. J. Cardio. Surg. 6:238-243, May-June 1965.

Experience with the surgical treatment of 6 patients with postinfarction ventricular aneurysm is reported. The open heart technique with the bubble-type pump oxygenator was used. Considering the gravity of the condition, operative mortality was reasonably low. The 2 patients in this series who died were operated on late after the myocardial infarction, eight months afterward in each case. One of the successful operations was performed 11 months after the infarction, but the optimum time is probably between three and four months. Excision of the aneurysm during extracorporeal circulation appears to be the logical operative treatment.

Familial benign chronic pemphigus. A. Morales, C. S. Livingood and F. Hu. Arch. Derm. 93:324-328, Mar. 1966.

Two cases of familial benign chronic pemphigus (FBCP) are reported. The appearance of active lesions seemed to be related to trauma in one, or to exacerbation of psoriatic lesions in another. Bacterial infection was not found to be an important factor in causing exacerbation of the disease. It is proposed that in genetically predisposed persons, histological or clinical manifestations of FBCP may become evident under stimulations such as trauma, bacterial infection, or dermatoses which serve to bring about a Köbner phenomenon.

Carotid-body tumors. E. Morfin. Arch. Surg. 91:947-951, Dec. 1965.

Although carotid-body tumors are uncommon, a general surgeon may be confronted with these neoplasms at some time in his lifetime and should know when surgical intervention is feasible. Most of these neoplasms are benign, but a small percentage are malignant and metastasize. Even if the microscopic picture is benign, these tumors can involve vital structures because of their location. Their removal carries a high mortality and morbidity when a reckless attempt is made to excise them. Occasionally, vascular prostheses have to be used. Clinical material from 11 patients operated on for carotid-body tumors in Henry Ford Hospital is presented.

*From Edsel B. Ford Institute for Medical Research.

ABSTRACTS

Chloroquine: its mechanism of action upon immune phenomena. T. R. Neblett, T. K. Burnham, and N. Kay. Arch. Derm. 92:720-725, Dec. 1965.

Data were presented to indicate that the antimalarial drug chloroquine does not interfere with the normal antibody response in rabbits nor does it depress the levels of formed antibody. Evidence was presented to show that it can interfere to some extent with an antigen-antibody reaction of the type not requiring complement, the fluorescent treponemal antibody (FTA-200) test. The drug inhibited biological complement activity *in vitro*, and the action must be attributable to a mechanism other than binding of Ca^{++} and Mg^{++} . Addition of an excess ion served to heighten the complement inhibition in the presence of drug. Chloroquine's therapeutic effect in certain connective tissue diseases may be due to its interference with *in vivo*, complement dependent, antigen-antibody reactions occurring in these diseases by inhibiting complement activity.

Treponemal antibodies in non-syphilitic, positive anti-nuclear factor sera. T. R. Neblett, T. K. Burnham, L. R. Merriam and G. Fine. J. Invest. Derm. 46:84-90, Jan. 1966.

Two distinct antibodies appear to be responsible respectively for the simultaneous occurrence of anti-nuclear factor and modified FTA-200 (FTA-M) reactions from sera of patients having certain connective tissue disorders, notably lupus erythematosus. The positive modified FTA (FTA-M) reaction was reversible by absorption with Reiter's treponemal sonicate, whole human tumor homogenate absorption and partially reversible with human tumor cytoplasmic residue. Human tumor cell nuclear sonicate either rendered no FTA absorption or resulted in increased fluorescent brilliance. The antibody responsible for the reversible modified FTA (FTA-MR) result is thought to be the same as a factor capable of reacting with tumor cell cytoplasm. Syphilitic antibodies cannot be absorbed from their respective sera by the methods described here. Use of the FTA modified reversible (FTA-MR) reaction as an additional screening test for auto-immune processes is advocated.

The problem of associating coagulase-negative staphylococci with disease. E. L. Quinn, F. Cox, and M. Fisher. Ann. N. Y. Acad. Sci. 128:428-442, July 23, 1965.

The crux of today's staphylococcus problem lies not so much in changes in our staphylococci, as it does in changes in the status of the host. Therefore, it was difficult to detect biologic differences in the coagulase-negative staphylococci isolated from infected and non-infected patients, either *in vitro* or in attempts to induce infection in animals. On the other hand, in recent years changes in the status of the host associated with cardiac surgery or ventriculocerebrospinal fluid shunt operations were associated with an increased incidence of coagulase-negative staphylococcal disease. The diagnostic problem of associating these organisms with disease was resolved by appreciation of the present status of staphylococcal disease in relationship to the hospital environment and by association of persistent bacteremia with a characteristic clinical syndrome in patients with preexisting heart disease, recent cardiac surgery, or ventriculovenous cerebrospinal fluid shunts. In other patients from whom this organism was isolated, convincing evidence of the presence of staphylococcal disease was lacking and further study of this problem is indicated.

Study of gouty tophi skin windows in man. J. W. Rebeck, J. W. Sigler, and C. L. Barth. Fed. Proc. 24:240, Mar.-Apr. 1965.

Application of crystalline sodium acid urate obtained from each patient's own gouty tophi permitted observation of their disposition in test lesions in man. In 7 patients with gout 25 test lesions were studied. Polarization optics were employed to follow leukocytic phagocytosis of urate crystals. The urate crystal size appeared to be a determinant in the ability of the leukocytes to phagocytize the crystalline material. The longest crystal engulfed measured 24 microns; the usual range was from under 1 to 15 microns. Phagocytic ability was controlled with parallel or concomitant carbon particle ingestion studies. In additional controls, leukocytic migrations were observed in 7 lesions in 3 patients on colchicine therapy for their gout, but without application of urates to their lesions. In the latter group, modulation of lymphocytes to macrophages (histiocytes) was accomplished unaccomplished by mitoses in the milieu of colchicine.

ABSTRACTS

A syndrome resembling infectious mononucleosis after splenectomy for idiopathic thrombocytopenic purpura. A. Rosenberg and E. J. VanSlyck. *Ann. Intern. Med.* 63:965-971, Dec. 1965.

In a 10-year period, three instances of a syndrome resembling infectious mononucleosis were found after splenectomy for idiopathic thrombocytopenic purpura. Two of these occurred in patients with chronic idiopathic thrombocytopenic purpura and one in a patient with an acute case. During this decade 34 patients, 21 of whom were under the age of 45, underwent splenectomy for idiopathic thrombocytopenic purpura, giving an incidence of 8.8% overall, or 14.3% in the susceptible age group. The incidence of other postsplenectomy febrile complications in these 34 patients was 8.8%. In 298 splenectomies done at this hospital for other indications, no instance of a similar syndrome resembling infectious mononucleosis was found.

Thromboangiitis obliterans. I. J. Schatz, G. Fine and W. R. Eyler. *Brit. Heart J.* 28:84-91, 1966.

Thromboangiitis obliterans is a separate and distinct diagnostic category. The importance of its recognition lies in the fact that patients who suffer from it seem no more susceptible to atherosclerosis than do others of the same age, and that almost always abstinence from smoking will arrest this disorder. Accordingly, detection of this disease has considerable practical value. A study of 41 patients with symptoms of distal arterial occlusive disease, and/or thrombophlebitis and Raynaud's phenomenon was made. This group had a distinct clinical course, and responded to the therapeutic maneuver of abstinence from tobacco. Characteristic histological and radiological features were observed. The data available support the thesis that thromboangiitis obliterans is a separate clinical entity.

Hypertension and retinopathy in Waldenström's macroglobulinemia. K. P. Schmidt, J. R. Caldwell, D. H. Basinski and G. Fine. *Ann. Intern. Med.* 63:842-850, Nov. 1965.

A proved case of Waldenström's macroglobulinemia is described. Outstanding features were, in addition to the more common findings, hypertension, casting of the cardiovascular system on autopsy, a high prothrombin time, and retinopathy of paraproteinemia. It is postulated that high blood viscosity was one of the factors causing hypertension and also right ventricular heart failure. On autopsy the cardiac chambers and major blood vessels were filled with a jelly-like substance forming casts of the inner surface of these structures. The chemical nature of this material was not determined; however, these postmortem findings seemed to reflect the abnormal blood composition as it existed during the patient's illness. An unusually high prothrombin time was probably due to severe hepatic congestion. It is believed that early recognition of the characteristic eyeground changes of macroglobulinemia is helpful in establishing the diagnosis.

Quantitative determination of bile acids by direct densitometry of thin-layer chromatograms. G. Semenuk and W. T. Beher. *J. Chromatogr.* 21:27-31, 1966.

A method was developed for quantitative analysis of bile acids by chromatography and densitometry. The instrument used was a Photovolt Recording Transmission Densitometer equipped with an automatic recording integrator and thin-layer chromatoplate stage, which allowed for the automatic scanning of thin-layer chromatography (TLC) plates. Within the range of experimental error, the results of cholic and chenodesoxycholic acid determinations on biological samples agreed with those obtained by the spectrophotometric method of Gänshirt. Reproducibility was influenced by the uniformity of the plate-coating and of the spraying, by width of channels, and by spot size. Since several samples may be run simultaneously and it is unnecessary to locate and remove them from the plates for spectrophotometric analysis, this method has advantages over methods currently employed for bile acid analysis.

ABSTRACTS

Long-term behavior of a dacron arterial substitute: clinical, roentgenologic and histologic correlations. D. E. Szilagyi, R. F. Smith, J. P. Elliott, and H. M. Allen. *Ann. Surg.* 162:453-477, Sept. 1965.

In a study covering seven years of clinical experiences, the performance of a Dacron prosthesis as an arterial substitute was evaluated on grounds of late patency rates, morphologic changes in serial angiograms, histologic behavior in tissue specimens, and the incidence of healing complications. The maintenance of late patency rates was found very satisfactory in aorto-iliac operations but disappointing in the reconstruction of the femoropopliteal arterial stem. Morphologic alterations of the plastic implant could be demonstrated in over 30% of the cases by means of postoperative serial angiograms, but with few exceptions these changes were of minor character and did not affect the functional capacity of the prostheses. In the group as a whole, the incidence of healing complications directly involving the implant was high, a fact that underlines the hazards that an implanted foreign body (which an arterial prosthesis is) represents for the proper healing of tissues. The circumstances by which special attention to technical details reduced by a margin of 90% the incidence of complications in the last years of the experience reported emphasize the need for and effectiveness of fastidious care in the use of these devices.

Ruptured abdominal aneurysms simulating sepsis. D. E. Szilagyi, J. P. Elliott, Jr., and R. F. Smith. *Arch. Surg.* 91:263-275, Aug. 1965.

In a continuous series of 71 ruptured aneurysms, six, or about 9%, presented clinical features that made early and accurate diagnosis difficult. The only common clinical characteristic was the presence of pain in the abdomen or the back. Fever, leukocytosis, and lowering of the blood hemoglobin level appeared and at last a mass became palpable. The underlying lesion was an aneurysm of the abdominal aorta or one of its large branches that had previously perforated in such a manner that the defect in the aneurysmal wall and the resulting hematoma had become temporarily sealed off. Persistent or recurrent pain for the explanation of which no musculoskeletal, gastrointestinal, or genitourinary abnormality can be found in an arteriosclerotic man over 50 years of age should always bring to mind the possibility of this lesion. The appearance in flat roentgenograms or the clinical palpation of a pulsatile or nonpulsatile mass should confirm the diagnosis.

Management of left ventricular outflow tract obstruction by ventriculotomy. R. E. Taber and E. W. Green. *Ann. Thorac. Surg.* 1:546-558, Sept. 1965.

Following an initial experience with transaortic exposure for subaortic stenosis in 7 patients, a left ventriculotomy was used in 10 operations. In 6 of the 10 patients thus managed fibrous subaortic stenosis was present, in 3 the outflow obstruction was of the hypertrophic muscular type; 1 child had a ventricular rhabdomyoma. Fibrous outflow tract obstructions were successfully resected from both the left and right ventricles of 1 patient. Seven of the 10 ventriculotomy patients survived. Four of these patients have had late postoperative left heart catheterization, which showed no residual gradient in 3, and 30 mm Hg in 1. Pressure measurements were made in the operating room on the remaining patients and showed no gradient. The three postoperative deaths were unrelated to the ventriculotomy incision. The transventricular approach is preferred for management of hypertrophic muscular subaortic stenosis and for the rare ventricular tumor which produces outflow obstruction. In congenital fibrous subaortic stenosis, the transaortic method is satisfactory if the obstruction is quite close to the valve; however, the transventricular route is desirable with low-lying lesions and when secondarily hypertrophied ventricular muscle must be resected to relieve the obstruction.

Prevention of pulmonary emboli with a vena caval clip. R. E. Taber, E. Zikria, E. A. Hershey, and C. R. Lam. *JAMA* 195:889-894, Mar. 14, 1966.

A serrated teflon clip for partially occluding the inferior vena cava to prevent pulmonary embolism has been used in the management of thromboembolic disease in 42 patients. Experimental testing of the device demonstrated that it trapped all emboli of 5 mm or larger diameter. Pulmonary angiography preoperatively was used in 8 patients to confirm the clinical impression of embolism. Indications for the clip were formation of emboli in patients on anticoagulant therapy and others with contraindications to these drugs. There has been no operative mortality due to use of the clip nor postoperative pulmonary embolization following its application. Four patients who apparently had no further embolus formation after clipping were studied by postoperative venograms of the inferior vena cava and passage of a cardiac catheter through the clip site. The cava was patent in each.

ABSTRACTS

A tetracycline-based evaluation of the relative prevalence and incidence of formation of secondary osteons in human cortical bone. H. Takahashi and H. M. Frost. *Canad. J. Physiol. Pharmacol.* 43:783-791, Sept. 1965.

In mineralized sections of 160 adult human bones, the relative prevalence of three major kinds of secondary osteons was compared with the relative incidence with which they were formed, the latter with the aid of bones that had been marked *in vivo* with tetracycline antibiotics. Relative prevalence and incidence were similar, implying that the biological lifetimes of the three osteon types are similar. Unremodeled secondary osteons were about 90% of the total osteon population, and also of the labelled bone-forming sites. Each of the 822 tetracycline-labelled foci of bone formation that were found inside the cortices of various bones belonged to one of the three osteon types that were studied, and no other kinds of labelled sites were observed. This implies that osteonal remodeling is the major mode of osteoblastic activity inside cortical bone.

Comparison of cyclophosphamide and 5-fluorouracil in the treatment of patient with metastatic breast cancer. R. W. Talley, V. K. Vaitkevicius and G. A. Leighton. *Clin. Pharmacol. Ther.* 6:740-748, Nov.-Dec. 1965.

Both 5-fluorouracil and cyclophosphamide are useful in the palliation of metastatic breast cancer, when used in the dosage regimen described. They appear to be approximately equally effective, and are associated with similar, but slightly different degrees of, undesirable reactions. Response to or failure of hormonal therapy does not appear to influence the incidence of regression from either. On the basis of this study, it is suggested that sequential therapy with 5-fluorouracil and/or cyclophosphamide should be used in patients responding to either drug. Patients failing to respond to either agent in a first trial are not considered good candidates for the other, and perhaps another type of therapy should be considered.

The treatment of autoimmune hemolytic anemia with heparin. A. Ten Pas and R. W. Monto. *Amer. J. Med. Sci.* 251:63-69, Jan. 1966.

The treatment of autoimmune hemolytic anemia not infrequently taxes the ingenuity of the hematologist or internist. Those individuals not responsive to supportive blood transfusions, adrenocortical steroids and splenectomy, on occasion are benefited by immunosuppressive chemotherapeutic agents or radioactive colloidal gold (^{199}Au). The patient reported here with disseminated small cell lymphoma and a severe Coombs' positive hemolytic anemia was not responsive to the aforementioned measures. In fact, the massive transfusions required seemed to accelerate the hemolytic process. Therefore, therapy with heparin was instituted. A complete inhibition of the hemolytic process was effected and remission was preserved by a small maintenance dose. It is suggested that a trial of heparin, a less harmful agent than corticosteroids or immunosuppressive agents, should be the treatment of choice early in the course of severe autoimmune hemolytic anemia.

The effects of clomiphene citrate in patients with pituitary-gonadal disorders. R. J. Thompson and R. C. Mellinger. *Amer. J. Obstet. Gynec.* 92:412-420, June 1, 1965.

Observations of 41 women and 15 men receiving clomiphene citrate were made. The main effects were antiestrogenic, estrogenic, gonadotropin stimulating, and gonadal stimulating. Vaginal cornification, cervical mucus arborization, and endometrial growth were inhibited. In estrogen-deficient women, hot flushes and gonadotropin titers were decreased. In an estrogen-treated patient with Turner's syndrome, the suppressed gonadotropin secretion was increased. A moderate to marked increase in sperm counts was observed in 10 out of 11 oligospermic males. In 25 anovulatory women, ovulation was induced in 35 of 77 cycles. Regular ovulation was induced in 7 patients in whom it was previously irregular.



