1978 Publications of the Staff of Henry Ford Hospital

Selected Abstracts and Titles Edited by George C. Bower, MD

Abstracts

Block MA, Frame B and Jackson CE: The efficacy of subtotal parathyroidectomy for primary hyperparathyroidism due to multiple gland involvement. *Surg Gynecol Obstet* **147**:1-5, 1978.

Twenty-nine patients were treated by subtotal parathyroidectomy for primary hyperparathyroidism, and four of these patients showed persistent or recurrent hypercalcemia. In two of these four patients, progressive renal insufficiency had led to the need for chronic renal dialysis. Three of these four patients were in the group showing enlargement of all four parathyroid glands. Two additional patients have required treatment for permanent hypoparathyroidism. The parathyroid glands in the patients varied greatly in size, at least one parathyroid gland being no larger than normal in nine of the 29 patients. Of the 20 patients in whom all parathyroid glands showed evidence of enlargement, nine, or nearly one half, belonged to hereditary or multiple endocrine neoplasia categories. In all of this latter group of nine patients, subtotal parathyroidectomy provided control of hypercalcemia. Subtotal parathyroidectomy controls hypercalcemia in the major-

ity of patients with primary hyperparathyroidism due to multiple gland involvement. This is particularly true for patients in whom the third or fourth parathyroid glands show only mild or no enlargement. These results support our current policies relative to extent of subtotal parathyroidectomy, by which approximately one half of a normal sized parathyroid gland is preserved when all glands are enlarged; but third or fourth, or both, parathyroid glands are preserved, except for biopsy, when these are no larger than normal. Freezing some of the parathyroid tissue is advised for later autotransplantation if permanent hypoparathyroidism develops. Total parathyroidectomy and autotransplantation to the forearm are advised for patients in whom a viable remnant of parathyroid tissue cannot be preserved and, possibly, for those with progressive renal insufficiency.

Caldwell JR, Schork MA and Aiken RD: Is near basal blood pressure a more accurate predictor of cardiorenal manifestations of hypertension than casual blood pressure? *J Chron Dis* 31:507-512, 1978.

Measurement of casual and near basal systolic and diastolic blood pressures were correlated with the severity of cardiorenal manifestations of hypertension in 471 patients. There was a significant association of each of the four blood pressure measurements with each other (P < 0.001). Systolic blood pressure and manifestations of hypertension increased with age. Blacks had higher blood pressures and more manifestations than whites. All four blood pressure measurements were significantly associated ($r \ge 0.78$, P < 0.0005) with grade 3 fundi, proteinuria and casts in the urine,

electrocardiographic left ventricular hypertrophy, cardiomegaly by chest X-ray and aortic dilatation and/or elongation by chest X-ray. The *level* of blood pressure is *the* important correlate of these manifestations of hypertension. This is equally true whether systolic, diastolic, casual or near basal measurements are used. Near basal blood pressure does not correlate better with the cardiorenal manifestations of hypertension than casual blood pressure, neither does diastolic blood pressure correlate better with these manifestations than systolic blood pressure.

Carrillo AP, Marks DS, Pickard SD, Khaja F and Goldstein S: Correlation of exercise ²⁰¹thallium myocardial scan with coronary arteriograms and the maximal excerise test. CHEST **73**: 311-326, 1978.

Myocardial scans obtained by injecting radioactive ²⁰¹thallium during exercise were correlated with electrocardiograms obtained at rest and during exercise, with coronary arteriographic abnormalities, and with left ventriculograms in 55 patients suspected of having coronary arterial disease, 34 of whom had abnormal myocardial scans after exercise and 21 of whom had abnormal ECGs during excerise. The myocardial scan after exercise was most frequently abnormal in the presence of significant abnormalities in the Q wave or localized left ventricular asynergy and when ST-segment depression persisted for longer than ten minutes after exercise. All patients with single-vessel disease had abnormal myocardial scans after exercise, whereas five of 29 patients with

two or more abnormal vessels had normal scans. Patients with coronary arterial disease were more likely to have a normal myocardial scan after exercise when the resting ECG and left ventriculogram were normal and when exercise-induced ST-segment depression persisted for less than ten minutes. The combination of the myocardial scan after exercise and the ECG during maximal exercise had a sensitivity of 98%. The myocardial scan after exercise alone had a specificity of 100%. These observations indicate that the myocardial scan obtained by injecting ²⁰¹thallium during exercise is an important diagnostic adjunct in the identification of patients with coronary arterial disease.

Englert E, Jr, Freston JW, Graham DY, Finkelstein W, Kruss DM, Priest RJ, Raskin JB, Rhodes JB, Rogers AI, Wenger J, Wilcox LL and Crossley RJ: Cimetidine, antacid, and hospitalization in the treatment of benign gastric ulcer: A multicenter double blind study. *Gastroenterology* **74**:416-425, 1978.

Two hundred forty patients with benign gastric ulcer were treated in a controlled clinical trial to assess the effect on healing of cimetidine, antacids, and hospitalization. Inpatients and outpatients were randomly assigned to one of three treatments: cimetidine plus antacid, cimetidine plus dummy antacid, or placebo tablet plus antacid. In 206 patients who met criteria for analysis, ulcer healing as shown by endoscopy occurred by 12 days in 11 to 26% and by 42 days in 58 to 76%. There were no significant differences in healing between hospitalized and nonhospitalized patients or between treatment subgroups. Symptomatic response was equivalent in all groups. The median antacid consumption

was 328 mEq *in vitro* buffering capacity per day. Patients taking antacids experienced significant diarrhea compared with those taking no antacid. This investigation suggests that the effect of cimetidine is equivalent to that of large amounts of antacid, but because a true placebo group was not studied it is not possible to conclude from this study alone whether either agent influenced healing. In contrast to widespread belief, initiation of treatment in the hospital did not enhance healing, but because patients were not randomly assigned to inpatient and outpatient status no final conclusion about the effect of hospitalization on healing can be drawn.

Grenvik A, Powner DJ, Snyder JV, Jastremski MS, Babcock RA and Loughhead MG: Cessation of therapy in terminal illness and brain death. *Critical Care Med* **6(4)**:284-291, 1978.

Modern technological advances have given today's physicians the ability to prolong life in critically ill patients even when cure is no longer possible. Consequently, controversy has arisen over unwarranted continued life support in these situations. Fear of lawsuits in recent years has added to the confusion. Therefore, guidelines were developed at Presbyterian University Hospital in Pittsburgh which make it possible to categorize each ICU patient into one of the four categories: "Total Support," "All But Cardiopulmonary

Resuscitation," "No Extraordinary Measures," and "Brain Death." Implementation of this categorization has proven to be a practical plan for management of all ICU patients. It allows maximal efforts towards viable patients, provides a more humane ICU environment for all involved, offers improved morale among ICU personnel and reduces expenses. However, the system necessitates careful supervision by a physician familiar with it.

Hageman JH, Smith RF, Szilagyi DE and Elliott JP: Aneurysms of the renal artery: Problems of prognosis and surgical management. Surgery 84(4):563-572, 1978.

The clinical course of 29 patients bearing 36 renal artery aneurysms was reviewed. The majority of the lesions (30 of 36 or 83%) were detected incidentally in the course of angiographic examination, mostly in the study of peripheral atherosclerotic

arterial disease. Twenty-five lesions 2.0 cm or less in diameter, treated conservatively and observed during a period of time from 1 to 17 years, remained clinically silent. In 10 patients (with 11 lesions) surgical treatment was employed. Indications for surgery

included rupture of the aneurysm into the renal nervous system, pain due to enlargement of the aneurysm, significant arterial hypertension, young age (28 yrs), and size (>2.5 cm). For eight patients the surgical treatment consisted of reconstructive excision and repair, with excellent results in all cases but one for a period of observation of from 1 to 17 years. In one patient aneurysmal dilatation of a vein bypass graft resulted in nephrectomy 2 years following operation. In the remaining two patients nephrectomy

was required. Unless hypertension or pregnancy complicates the clinical picture, renal arterial aneurysms 1.5 cm or less in diameter can be observed safely by periodic angiography. Surgical repair of an aneurysm is recommended regardless of size if pregnancy cannot be avoided and hypertension is uncontrolled, and in aneurysms 1.5 cm or less in diameter which show an increase in size. A number of reconstructive vascular procedures have proved successful. *Ex vivo* repair may be an organ-saving technical aid.

Hodgkinson CP: "Recurrent" stress urinary incontinence. Am J Obstet Gynecol 132:844-860, 1978.

This report constitutes a 15-year review of 205 operations performed upon 198 adult women suffering from "recurrent" stress urinary incontinence (SUI). All patients received special preoperative investigation including direct electronic urethrocystometry and metallic bead-chain urethrocystography. From these studies 163 of the patients were determined to have pure "anatomic SUI" and 42 demonstrated characteristics of anatomic SUI plus some anatomic or physiologic defect which might compromise the final

results ("compromised SUI"). Preoperative radiographs demonstrating the previous causes for failure fell into four general categories: philosophic, pragmatic, subjective, and psychological. All patients were operated upon with the single objective of achieving high retropubic elevation and fixation of the urethrovesical junction. In those having pure "anatomic SUI" the failure rate was 5%. In the "compromised SUI" group the failure rate was 39%. Type II detrusor dyssynergia was the most common cause of failure.

Jara FM, Yap A, Toledo-Pereyra LH and Magilligan DJ Jr.: The role of surgery in primary osteomyelitis of the chest wall. J Thoracic Cardiovasc Surg 77:147-150, 1978.

Seven patients with primary osteomyelitis of the chest wall are described. All patients presented with pain at the site of infection, and four patients had a tumor-like mass that could easily be confused with a neoplastic process. All were heroin addicted, and pseudomonas was the most common organism cultured. Conser-

vative management with antibiotics for a minimum of 4 weeks is recommended with operation assuming a secondary role, namely, to assist in the initial diagnosis or in the form of limited resection of residual sinuses. Primary wide resection is discouraged.

Kleerekoper M, Rao DS and Frame B: Hypercalcemia, hyperparathyroidism, and hypertension. *Cardiovasc Med* **3**:1283-1296, 1978.

It is estimated that primary hyperparathyroidism occurs in 1 in 800 of the general population, and that 30% of these patients have hypertension. In some patients, successful parathyroid surgery results in a significant reduction in blood pressure, occasionally with complete remission of hypertension. The mechanisms whereby hypercalcemia may result in hypertension include impaired renal function, direct vasoconstrictor effect, positive in-

otropic effect on cardiac contractility, alteration in renin release, associated endocrinopathy, and mobilization of skeletal sodium. In addition, it appears that about 2% of patients on long-term therapy with thiazide diuretics will develop hypercalcemia. In most of these patients the hypercalcemia will persist after cessation of thiazides. A diagnosis of primary hyperparathyroidism must be strongly considered in all patients with ''thiazide-induced'' hypercalcemia.

Langsam LB, Fine G and Ponka JL: Malignant histiocytomas. Arch Surg 113:473-476, 1978.

During the past ten years, the histiogenesis of malignant histiocytomas and a group of related benign and malignant lesions have been the source of speculation. Although of heterogeneous histological appearance, it is believed that there is a common cell of origin for these neoplasms—the histiocyte. From 1966 to 1974, 16 patients were encountered who had neoplasms that fell into the general group of malignant histiocytomas. These tumors were variously located in the extremities, head, chest wall, retro-

peritoneum, lung, spermatic cord, and lower abdomen. Surgical treatment included radical amputations, wide local excision, pulmonary lobectomy, and nephrectomy. Cobalt therapy and chemotherapy with vincristine sulfate, cyclophosphamide, doxorubicin hydrochloride, and chlorambucil were also used. Ten of 16 patients are alive after treatment, two are alive with metastatic disease, but four have died of malignant disease.

Lam CR, Kabbani S and Arciniegas E: Symptomatic anomalies of the aortic arch. Surg Gynecol Obstet 147:673-681, 1978.

Twenty-eight patients with anomalies of the aortic arch producing compression of the trachea and the esophagus have undergone surgical correction at this hospital since 1949. Of the vascular rings encountered, 15 had a double aortic arch and eight had a right aortic arch with a constricting ligamentum arteriosum. Five had an aberrant right subclavian artery passing posterior to the esophagus producing dysphagia. The patients with the double aortic arch were all infants. Two off the patients with a right arch and constricting ligamentum arteriosum and one patient with a retroesophageal subclavian artery were adults. Stridor from pressure on

the trachea was the common symptom in the infants. The diagnosis was confirmed by esophagograms; aortography was less helpful. The surgical approach was the same for all of the anomalies, through a posterolateral incision in the left fourth interspace. For the double arches, the smaller limb, usually the anterior, was divided. Division of the ligament relieved the constriction of the right aortic arches, and the anomalous right subclavian artery was divided near the aorta. There were no hospital deaths, but one infant with a double aortic arch operated upon at the age of two weeks and with a tracheostomy died at home seven months later.

McFarland TM, Alam M, Goldstein S, Pickard SD and Stein PD: Echocardiographic diagnosis of left ventricular hypertrophy. *Circulation* 57:1140-1144, 1978.

Echocardiograms were obtained on 27 adults with electrocardiographic criteria of left ventricular hypertrophy (LVH) to determine how echocardiograms might best identify LVH. Both the left ventricular (LV) posterior wall thickness and interventricular septal thickness were found by echocardiography to be increased (≥12 mm) in only 13 of 27 patients (48%) with LVH. The LV was dilated (≥58 mm) in the absence of posterior wall thickening in 9 of 27 patients (33%). The LV mass, estimated from standardly measured

dimensions, was increased (>200 g) in 21 of 27 patients (78%) and when measurements were made by the Penn method, mass was increased in all patients. These observations indicate that the echocardiographic estimation of LV mass is a more sensitive indicator of LVH than LV posterior wall and septal thickness. Since LVH is defined as an increased mass of LV muscle, these observations are consistent with this fundamental definition of left ventricular hypertrophy.

Moore TN, Livingston R, Heilbrun L, Eltringham J, Skinner O, White J and Tesh D: The effectiveness of prophylactic brain irradiation in small cell carcinoma of the lung. *Cancer* **41**:2149-2153, 1978.

Brain involvement in small cell carcinoma of the lung is a common phenomenon occurring in from 29 to 45% of patients. Because of this, it was suggested that prophylactic brain irradiation be made a part of treatment plans for small cell carcinoma. In December 1974, the Southwest Oncology Group (SWOG) began treating patients with combination chemotherapy and irradiation of both the primary lesion and whole brain. In two years, there were 390 patients entered into the study. In patients with extensive disease only 6 of 152 prophylactically irradiated patients developed CNS

signs or symptoms of CNS recurrence. In limited disease, 6 of 88 prophylactically treated patients had CNS recurrence and in only 4 was this the site of initial failure. We feel prophylactic brain irradiation in small cell carcinoma of the lung is of benefit. There is a suggestion of a contribution to increased longevity and it is evident that the patient is spared the neurologic complications of metastatic brain disease and the extra time, effort and expense of returning for treatment of brain metastases.

Parfitt AM, Miller MJ, Frame B, Villanueva AR, Rao DS, Oliver I and Thomson DL: Metabolic bone disease after intestinal bypass for treatment of obesity. *Ann Intern Med* **89**:193-199, 1978.

We studied the bone status in 52 patients 1 to 14 years after intestinal shunt surgery. Before operation, bone mass measured by photon absorptiometry and radiographic morphometry was normal by two criteria and slightly reduced by a third. After jejunocolostomy both cross-sectional and longitudinal data showed accelerated loss of bone due to increased net endosteal resorption. Similar but less significant changes occurred after jejunoileostomy. The severity of bone loss correlated better with hypoproteinemia than with any other biochemical measurement. Bone biopsy after tetracycline labeling in 10 patients with bone pain showed os-

teomalacia in two and significant impairment of osteoblast function in seven. Plasma 25-hydroxycholecalciferol levels were normal or low despite prescription of 1.25 mg of vitamin D2 daily. Plasma parathyroid hormone levels were raised in only three of the patients with abnormal bone histology. We conclude that intestinal shunt surgery has an adverse effect on the bones. There is persistent intestinal malabsorption of vitamin D and calcium, doses of which ordinarily given to these patients may be too small, but it is likely that other nutritional deficiencies are also important.

Pasik Ll, Anderson JA, Rebuck JW, Wolf JW, Reid RH, Niemes WN and Lightbody J: Nezelof's syndrome with adenosine deaminase (ADA) deficiency: Two-year experience with thymosin and ADA replacement. Abstr. J Aller Clin Immunol 61:142, 1978.

A 4½-yr-old black boy was seen at 26 months with failure to thrive, recurrent pneumonia, and mucocutaneous moniliasis. Immunoglobulins were normal. Lymph node biopsy showed germinal centers but sparse paracortical cellularity. Peripheral blood lymphocytes formed 50% EAC rosettes and 6% E rosettes. He was lymphopenic and had absent responses to a battery of delayed hypersensitivity skin tests and dinitrochlorobenzene (DNCB). Red cell and lymphocyte ADA levels were 1% and 8% of normal, respectively. With weekly thymosin injections, moniliasis cleared, peripheral E rosettes rose to 60%, and the delayed skin test with diphtheria-tetanus (DT) became weakly positive. Lymphopenia and pneumonia persisted. ADA replacement by transfusion of fresh

frozen plasma and irradiated red cells were added. The pneumonia cleared. After two years of treatment, DT and streptokinase-streptodornase (SK-SD) skin tests are positive, E rosettes are 40% to 50%, and total lymphocytes and phytohemagglutinin (PHA) response are low normal. Bone marrow and Rebuck skin window cellularity have returned toward normal. Lymphocyte ADA levels remain deficient. DNCB still does not elicit a response. Clinically, the child has grown; he attends nursery school and handles infections without difficulty. Thymosin and ADA replacement therapy have been found safe and effective. ADA replacement may decrease the amount of adenosine in cells and alter the toxic effect on lymphocytes.

Saravolatz LD, Burch KH, Quinn EL, Cox F, Madhavan T and Fisher E: Polymicrobial infective endocarditis: An increasing clinical entity. *Am Heart J* **95**:163-168, 1978.

Polymicrobial endocarditis was very uncommon until ten years ago. However, since that time, at least 21 cases have been reported, and 10 patients with this mixed infection have been seen at Henry Ford Hospital. All except one of the infections occurred in patients who had undergone heart surgery or abused intravenous drugs. Although generally clinically indistinguishable from monomicrobial endocarditis, these mixed infections carried a very high

mortality rate (>30%), and an unusually large number of the patients (>50%) needed heart surgery either to control the infection or to repair cardiac defects resulting from the infection. The prognosis depended on the species rather than the number of organisms isolated and on aggressive antimicrobial and surgical therapy.

Stein PD, Sabbah HN and Barr I: Intensity of heart sounds in the evaluation of patients following myocardial infarction. *CHEST* **85**:679-684, 1979.

The amplitude and intensity of heart sounds were measured at the chest wall in 25 patients with acute myocardial infarction in order to determine what meaningful clinical information can be derived from observing the intensity of the heart sounds. During the early period after infarction, the first heart sound (S_1) , the aortic component of the second heart sound (A_2) , and the pulmonary component of the second heart sound (P_2) each were lower (P < 0.001) than the respective heart sounds of 23 normal subjects. Measurable reductions of sounds frequently occurred in the absence of a third heart sound or rales. Prolongation of the ratio of the preejection period over the left ventricular ejection time (PEP/LVET) (P < 0.001) and a reduced rate of isovolumic relaxation (P < 0.001) accompanied the reduced heart sounds. During the course of recovery, the average intensity of A_2 increased in 19 of 25 patients. Among the 19 patients who showed an increase in A_2 , the PEP/LVET decreased (im-

proved) (P<0.02), and the rate of isovolumic relaxation increased (P<0.001). Blood pressure did not change. The diminished A_2 , as shown by recently described mechanisms of production of the second heart sound, is due to a reduction of left ventricular isovolumic relaxation. Similarly, the reduced P_2 implies that right ventricular isovolumic relaxation also was affected by the infarction. Variations of S_1 seem to relate to variations of the left ventricular contractile state. The results of this study indicate that the intensity of heart sounds at the chest wall in patients with normal valves and normal transmission of sound is measurably diminished in patients following myocardial infarction. Noticeable ausculatory variations of the intensity of heart sounds can serve as a meaningful guide to the evaluation of ventricular performance at the bedside.

Szilagyi DE, Hageman JH, Smith RF and Elliott JP: Spinal cord damage in surgery of the abdominal aorta. *Surgery* 83:38-56, 1978.

The incidence, etiology, and clinical manifestations of spinal cord damage after abdominal aortic operations and abdominal aor

tography are defined on grounds of the authors' experience and of a survey of the pertinent literature. In the authors' experience the

incidence of cord damage was 0.25% (three of 3,164) after abdominal aortic operations and 0.01% (two of 17,494) after abdominal aortography. As regards postoperative cord complications in the authors' series, they occurred only in cases of aneurysm, were 10 times more common in ruptured than in unruptured aneurysms, and the neurological loss usually was complete flaccid paraplegia (five of eight or 62%) with high mortality (three of eight or 38%), and rare partial (two of eight or 25%) or complete (one of eight or 13%) recovery. Recovery was more likely the lesser the neurological loss. The cause of postoperative spinal cord damage was ischemia resulting from the

interruption of a critical radicular artery at the lower thoracic or high lumbar vertebral levels in the presence of anomalously located greater radicular or infrarenal radicular arteries. High aortic clamping and hypotension increased the probability of this occurrence, which essentially was unpredictable and, therefore, unavoidable. In postaortographic cases the cord damage is more variable in its extent, and its cause is a chemical insult brought about by flooding the anterior spinal artery with contrast medium to which the patient probably is hypersensitive. In both groups treatment of the established clinical picture (paraplegia) is confined to support and rehabilitation.

Yocum MW, Heller AM and Abels RI: Efficacy of intravenous pretesting and antihistamine prophylaxis in radiocontrast mediasensitive patients. *I Aller Clin Immunol* **62**:309-313, 1978.

Intravenous pretesting with radiocontrast media (RCM) was performed in 204 RCM-sensitive patients considered for repeat contrast radiography. Group 1 had vague histories of prior anaphylactoid reaction and negative pretests, and 2 of 41 (4.9%) had reactions upon contrast radiography. Groups 2 to 5 had definite histories of prior anaphylactoid reaction. Group 2 had the radiographic study cancelled: 18 of 21 (85.7%) had positive pretests. Group 3 had positive pretests and underwent contrast radiography, and 9 of 15 (60%) had reactions despite premedication. Group 4 (no premedication) and group 5 (diphenhydramine premedication) had negative pretests, but 11 of 53 (20.7%) and 3 of 71 (4.2%), respectively, developed reactions (P<0.001). The reaction frequency in group 3 (positive pretest) of 12 of 18 (66.7%) was greater than that in groups 4 and 5 (negative pretest) combined (14

of 124 (11.3%) (P>0.001). Intravenous pretesting identified a highrisk group and diphenhydramine premedication decreased the frequency of reaction in patients sensitive to radiocontrast media. The data from this study suggest the following approach to patients sensitive to RCM who require repeat contrast radiography. Patients reporting a minor reaction or mild anaphylactoid reaction are given 50 mg diphenhydramine intravenously 5 minutes prior to full-dose RCM injection. If a moderate or severe anaphylactoid reaction (bronchospasm, airway angioedema, hypotension) occurred, then RCM pretesting is performed and, if negative, diphenhydramine is given as above. If pretesting is positive, the patient is given prednisone, 10 mg orally, every 6 hr for 3 days and 50 mg diphenhydramine intravenously 5 minutes prior to the RCM injection.

Titles Only

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