VOLUME XXVIII · NUMBER 5 · DECEMBER

UNIVERSITY OF MINNESOTA

Medical Bulletin

OFFICIAL PUBLICATION OF THE UNIVERSITY OF MINNESOTA HOSPITALS THE MINNESOTA MEDICAL FOUNDATION AND THE MINNESOTA MEDICAL ALUMNI ASSOCIATION

IN THIS ISSUE:

University of Minnesota Medical Bulletin

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VOLUME XXVIII *December 15, 1956* NUMBER 5

CONTENTS

Published semi-monthly from October 15 to June 15 at Minneapolis, Minnesota.

Staff Meeting Report

Retrorectal Tumors*

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Retrorectal tumors are infrequent and diverse. Reference to them as post-anal gut, precoccygeal, presacral, or sacrococcygeal tumors is common. Most of them are detectable on digital rectal examination.

Considering the average length of the rectum to be 13.5 cm., the pelvirectal space is divided into anterior and posterior compartments by the rectal stalks. The structures related to the rectum posteriorly include the hemorrhoidal vessels, left piriformis muscle, branches of the sacral plexus, the middle sacral and ileolumbar vessels, branches of the sympathetic plexus of nerves, lymphatics, the sacrum, coccyx, glomus coccygeus, and the levator ani muscle. The retrorectal space is a potential space, becoming a true space with anterior displacement.

The original reports of retrorectal tumors dating back to 1831 were considered curiosities. Frequent references to the entity as Middledorpf tumors followed the report by that author in 1885. Most of the early reports dealt only with congenital tumors. The purpose of this report is to consider under the term retrorectal tumors all tumors in the retrorectal space, and to classify properly these tumors as to their pathologic and histologic nature.

Symptoms

Often these tumors are asymptomatic. The nature of the tumor is less important in symptom production than is mechanical pressure. Pain and anesthesia are secondary to pressure. Tumor size, location, degree of erosion or bone invasion, and neoplastic extension are other factors. Pain is usually more pronounced in those patients in whom the tumor began in or has invaded the bone. More often there is low backache or sacral pressure. Location and size are more important in determining whether paresthesias, sciatica, urinary or bowel dysfunction, or gait difficulty will be present.

*This is an abstract of a report given at the Staff Meeting of the University of Minnesota Hospitals on November 30, 1956. A copy of the complete report, including references, may be obtained by writing to the Editor, UNIVERSITY OF MINNESOTA MEDICAL BULLETIN, 1342 Mayo Memorial, Minneapolis 14.

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Diagnosis

Investigation of retrorectal tumors requires the following diagnostic approaches: 1) pelvic examination, to rule out associated genital lesions; 2) procto-sigmoidoscopy, to rule out inflammatory lesions and rectal tumors; 3) pelvic x-rays, to determine if bone erosion or primary bone tumor is present; 4) retrograde pyelogram, to determine kidney position and displacement of ureters; and 5) barium enema, to determine the condition of the colon and amount of rectosigmoid displacement in order to get some indication of tumor size.

A consideration of age and sex of the patient is important. Almost all teratomas and meningoceles are found in infants and children, usually in the female. Dermoids may occur at any age, but the presacral dermoids are usually seen in females. Chordomas are usually limited to adult males.

Classification of Retrorectal Tumors

The following is an inclusive classification of these tumors:

Inflammatory
- Infection
- Chemical

Congenital
- Dermoid
- Teratoma
- Chordoma
- Enterogenous cyst
- Meningocele
- Mucus-secreting cyst
- Choristoma

Neurogenic
- Neurofibroma
- Neuroblastoma
- Ependymoma
- Neurilemmoma
- Ganglioneuroma

Vascular and Lymphatic Tumors
- Hemangioendothelioma
- Lymphangioma
- Hodgkin's granuloma
- Lymphosarcoma

Osseous
- Giant-cell tumor
- Osteogenic sarcoma
- Cartilagenous tumors
  - Chondroma
  - Chondrosarcoma
  - Chondromyxosarcoma
- Myeloma
- Osteochondroma
- Ewing's tumor

Miscellaneous
- Metastatic tumors
- Chloroma
- Lipoma
- Fibroma
- Myoma
- Liposarcoma
- Fibrosarcoma
- Rhabdosarcoma
- Visceral organs

Discussion

Inflammatory tumors are probably the most common retrorectal tumors. Infection in this area generally occurs through an anal crypt. Other causes include rupture of a submucous abscess, extension of an ulcerative process in the rectum, spread of an ischioanal abscess, and perforation of the rectum from trauma due to foreign bodies or instrumentation.

Tumors of this nature are frequently accompanied by symptoms of chills, fever, and malaise, a sene of weight in the rectum or a dull ach-

ing pain over the sacrum or coccyx. Discomfort at the time of bowel movement is often a later symptom.

The diagnosis is usually made by considering the symptoms and examining the rectum. The treatment is incision and drainage. The site of preference for incision is between the anus and the tip of the coccyx. A finger is inserted into the rectum and used as a guide so as not to perforate the rectum. The prognosis is good.

Chemical tumors are usually oleomas and should be suspected when the patient presents with a history of injection therapy for internal hemorrhoids. Treatment consists of removing the tumor if possible. If not, incomplete excision and hot enemas should be tried. Roentgen therapy may relieve symptoms of low back pain and pressure symptoms.

The dermoid tumor is probably the most common congenital retrorectal tumor. Three areas have been incriminated as the site of origin. These include the proctodeum, the post-anal gut, and the neuroenteric canal. Faulty obliteration of these areas is suspected as the cause. These tumors occur most frequently in females and occur at any age. If a portion of the cyst wall is left, the tumor will surely recur. If the dermoid cyst or daughter cysts are ruptured, recurrence is common.

Treatment is the same as for teratoma, though because of incidence of malignant degeneration, early radical excision is usually desirable. Chordomas also are treated by radical excision, but the prognosis with this tumor is poor. In one study, the average survival period after excision was 102 months.

Meningoceles are best diagnosed by roentgenography. Aspiration of the cyst has effected a cure in some cases. This probably occurs more often when the communication between the sac and the spinal canal is small. Aspiration through the rectum is nearly always associated with a fatal meningitis. If aspiration is performed, the needle should be inserted between the anus and the coccyx. Emptying the cyst and ligating its pedicle through a posterior midline incision has been done. This method prevents refilling of the sac, but is a major procedure. Most authors agree that, unless symptoms warrant surgical interference, the best treatment is no treatment. The prognosis in these tumors is good.

For the remaining tumors of the congenital group, excision is the treatment of choice and the prognosis is good.

Neurogenic tumors are considerably less frequent than either inflammatory or congenital tumors in the retrorectal region. Mayo,

Baker and Smith reported 18 presacral neurogenic tumors, including 12 ependymomas, 5 neurofibromas, and one neurilemmoma, among a group of 161 presacral tumors. Ependymomas require as radical a surgical excision as is possible. Recurrence, with a poor prognosis, is frequent if the tumor is not adequately removed. Neurofibromas, while rare, demand radical excision, which is often difficult, and the prognosis is poor. With neuroblastomas, radical surgery followed by radiation is the therapy of choice. Conversely, neurilemmomas are usually well encapsulated, non-malignant, and carry a good prognosis. Ganglioneuromas are treated by complete excision.

Primary tumors of bone are rare. Primary tumors of the sacrum and coccyx, which extend anteriorly so as to be considered in the differential diagnosis of retrorectal tumors, are extremely rare. Mayo, Baker and Smith reported 14 such tumors of 161 presacral tumors.

The typical benign giant-cell tumor is a slow growing circumscribed lesion usually seen in the young adult and causing some pain. Roentgenographic examination reveals a circumscribed area of bone destruction with trabeculated cystic appearance. Complete surgical excision usually offers a cure. Radiation therapy may be used in conjunction with excision. Malignant forms of this supposedly benign lesion have been reported.

Osteogenic sarcoma is the most common primary malignant neoplasm of bone. It is characterized clinically by early and severe pain, together with a rapidly increasing swelling. Both osteolysis and osteogenesis are present on x-ray, although either may occur alone. Invasion of the soft tissue is conspicuous. Osteogenic sarcoma occurs most commonly in children and young adults. A history of local trauma is usually obtained. Pain is usually the first symptom. Excision of the tumor will relieve the pain, but is rarely curative. Radiation therapy is only palliative. The prognosis is poor.

The chondroma is a slowly growing tumor, usually occurring in the third decade, which as a rule produces only a slight pain. Roentgenograms usually show a rounded area of decreased density, with a smooth outline, often expanding beneath a narrow shell of cortical bone. The prognosis is good if the tumor is completely excised.

The chondrosarcoma is a rapidly growing tumor which is late to metastasize. Excision of the tumor carries a fair prognosis.

The chondromyxosarcoma has been reported. In addition to car-

tilagenous tissue, it contains mucous tissue. The prognosis with this tumor is poor.

Myeloma is a highly malignant tumor occurring in middle adult life. The lesions are entirely bone destructive and present a punched-out appearance on x-ray which is characteristic. Invasion of soft tissue through perforation of the periosteum leads to a retrorectal mass. Myeloma is highly susceptible to irradiation if radical excision cannot be undertaken. The prognosis is still poor.

Osteochondroma is a benign tumor usually occurring in young adults. Roentgenograms show the typical picture of an osseous base of normal bone density, arising directly from the cortex and capped by an irregular area showing irregular calcification. The treatment is excision. Because these tumors rarely become malignant, no treatment is necessary unless obstructing the birth canal or rectum. The prognosis is good. Ewing's tumor or Ewing's sarcoma is primarily a bone destructive lesion, with an onset characterized by pain, tenderness, and later swelling of the surrounding soft tissues. These tumors are at first susceptible to irradiation, but the response is only temporary.

Vascular and lymphatic tumors constitute a small group of tumors reported only rarely in the literature. If symptoms are produced, they are those of pressure due to the size of the tumor.

Lipomas, fibromas, myomas, and their malignant sarcomatous counterparts have been observed in the retrorectal area. Excision is the treatment of choice, with prognosis depending on the nature of the tumor.

Staff Meeting Report

Cardiac Demands of Rehabilitation: Variability of Metabolic and Cardiac Demand in Hospital Activities*

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At present we have only meager information to guide us in any attempted program of rehabilitation of patients with cardiac disease or disability. First, we do not have a clinical method for assessing accurately the ability of the heart to do work. Second, we know very little about the work which the heart must do under varying conditions of hospital activity. The methods of measuring cardiac output by rebreathing foreign gases, by cardiac catheterization, or by injection and measurement of the rate of distribution of dyes are subject to a number of inherent errors which limit their accuracy. Each system of measurement requires artificial and restricting conditions at the time of the measurement. It is difficult or impossible to measure cardiac output during many types of physical activity. Moreover, factors other than physical work influence the cardiac output.

We can estimate maximal cardiac output only if we stress the heart so that it is working maximally. If the heart is working below full capacity we have no way of knowing the reserve capacity available. The limited activities allowed the patient with cardiac disease while he is in the hospital or in early convalescence have been studied only to a limited extent. If we cannot determine with any accuracy the cardiac reserve of the individual patient with cardiac disease and we assume that it is desirable to protect the patient against cardiac overload, we should know the level of stress imposed by the various activities which that patient may perform. This study was undertaken to evaluate the effect of some ward activities and light activities in occupa-

* This is an abstract of a report given at the Staff Meeting of the University of Minnesota Hospitals on December 7, 1956. A copy of the complete report, including graphs and references, may be obtained by writing to the Editor, UNIVERSITY OF MINNESOTA MEDICAL BULLETIN, 1342 Mayo Memorial, Minneapolis 14.

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tional therapy on the output of the heart and upon metabolic demand. Also the problem of possible large transient increases in cardiac load following abrupt changes in physical activity was investigated.

Methods and Procedure

Two series of experiments were carried out:

A. Standard techniques for the measurement of oxygen consumption rate and cardiac output were used to study a variety of hospital activities. These methods provided data only after a steady state had been established for metabolic demand and cardiac output.

B. In a second series of experiments an electronic computer was used to obtain a continuous record of oxygen consumption rate and oxygen and carbon dioxide concentrations in the expired air. Pulse rate was recorded simultaneously.

In the first series of experiments, studies were made on subjects in the fasting state. The subjects were young women students in occupational therapy. They came to the laboratory after fasting since the previous evening if the tests were carried out in the morning, or after fasting since breakfast if the tests were carried out after noon. The subject rested for 30 minutes in a supine position on a standarad hospital bed in a laboratory where there was a minimum of distracting noises. At the end of the rest period, oral temperature, blood pressure and pulse rate were recorded. Oxygen consumption was measured using either a McKesson Metabolar spirometer from which oxygen was inhaled or a Tissot type spirometer for collecting expired air for analysis. The subject breathed through a standard mouthpiece connected by a 6 foot tube of 1 inch internal diameter to the spirometer. The mouthpiece was supported by a yoke around the neck so that the subject could turn her head freely and carry on necessary activities while oxygen consumption was being recorded. If the expired air was collected in the large spirometer it was analyzed for oxygen and carbon dioxide by the method of Scholander. The oxygen consumption was calculated from the difference in concentration of oxygen and carbon dioxide between room air and expired air and respiratory minute volume.

Cardiac output was calculated using Grollman's acetylene method for estimating arteriovenous oxygen difference. For most of the estimations of cardiac output alveolar air samples were collected from the rebreathing bag at the end of expiration after four breaths requiring 9 seconds time and at the end of 15 seconds after three more

breaths. Alveolar air samples were collected as indicated above for analysis of carbon dioxide, oxygen, and acetylene from which cardiac output could be calculated. After the estimation of cardiac output at rest the subject then assumed the position of the test and maintained it without doing work while metabolism and cardiac output were estimated again. The third measurement of oxygen consumption and cardiac output was made after the subject was working at a steady state on the activity under study. A period of at least 30 minutes was allowed between intervals of acetylene rebreathing to allow excretion of the acetylene which had been absorbed into the blood.

The following activities were studied:

1. *Sitting unsupported on edge of bed.* The subject was seated on the edge of a bed with arms in lap and feet supported on a chair.

2. *Getting out of and into bed.* These data do not represent the peak load of oxygen consumption or cardiac output during this activity but rather the average throughout a 6 minute period of activity. A standard hospital bed 34 inches high was used for the study. The subject stepped to an 8 inch footstool and from there to the floor. Following a flashing timer, she carried out the following sequence of activities at 9 second intervals: (1) rose from a supine position to sit on the edge of the bed, (2) rose to stand on the footstool by the side of the bed, (3) stepped from the footstool to the floor, (4) stepped from the floor to the footstool, (5) sat on the edge of the bed, (6) returned to the supine position in bed. The above activity was carried out continuously through a 6 minute period used for recording oxygen consumption followed immediately by a cardiac output determination.

3. *Leather tooling.* The subject tooled a standard design on leather while sitting in a bed with a Gatch frame, reclining at an angle of 45 degrees. The bed table had the working surface inclined at a convenient angle. The subject rested her forearms on the table as she worked.

4. *Chip carving.* The subject was seated in a straight backed chair at a table and used an Xacto knife for chip carving. She chipped according to a pre-drawn design. A sound timer rang at 5 second intervals to control the rate of activity.

5. *Platen press printing.* The subject stood at a platen floor press operated by a foot pedal and printed cards at the rate of one card per 5 seconds. In order to carry out the activity, she depressed the foot pedal which activated the press four times in each 5 seconds.

Operation of the press required the subject to balance on the left foot as she pedaled with the right foot and to use both hands in a coordinated sequence of activity of inserting the card, pushing the throw lever forward, removing the card, and pulling the throw lever back.

In the second series of experiments the main emphasis was placed on developing methods to observe some of the transient changes in the circulatory and respiratory systems following abrupt changes in physical activity. To accomplish this, electronic apparatus was used to provide a continuous record of oxygen consumption rate, oxygen and carbon dioxide concentrations in the expired air, respiratory minute volume (expired air) and pulse rate. Pulse rate was recorded from the output of a Waters Corporation cardiotachometer.

Results

Data obtained from the first series of experiments are presented in Tables 1, 2 and 3.

Reclining in bed, sitting on the edge of the bed, sitting on a chair and leather tooling in bed produced only a small increase in metabolic demand. Chip carving and getting into and out of bed imposed a moderate but distinct increase over basal in metabolic requirement, while operating the printing press more than doubled the energy required over basal. These data are shown in Table 1.

Table 2 shows the results of the studies described above on the effect of body position and physical activity on cardiac index. Of interest here was the apparent decrease in cardiac output when the subjects changed from the supine position to sitting on the edge of the bed or in a chair. The data indicate small increase in cardiac output when the subjects changed from the supine position to reclining in bed at 45 degrees with the knees flexed. Moderate but more definite increases in cardiac output of 15 to 20 per cent over supine were observed during chip carving and leather tooling in bed. Getting into and out of bed resulted in an increase in cardiac output of approximately 40 per cent and operating the printing press imposed the largest cardiac load with a 70 per cent increase in cardiac output.

Table 3 provides a convenient means of comparison of the data from Tables 1 and 2. The activities studied are arranged from top down in order of progressively greater metabolic demand. For these same activities, the cardiac output studies yielded rather inconsistent data, since the changes in cardiac output were not proportional to the increases in metabolism until the metabolic rate had been increased

over 60 per cent by getting into and out of bed or by operating a printing press.

From the second series of experiments, continuous records of volume of expired air, oxygen, and carbon dioxide concentrations in the expired air with the subject supine in bed and then running ("jogging" in place) were obtained. Transient changes in oxygen and carbon dioxide concentrations in the expired air occurred during the first minute of running, when, in spite of a sharp increase in respiration, oxygen concentration fell from 16 to 13.5 per cent. After less than three minutes of continued running, oxygen and carbon dioxide concentrations in the expired air stabilized near the control levels.

Discussion

The rehabilitation of a handicapped individual usually requires some type of physical activity. The rehabilitation of cardiac patients presents a challenging medical problem since overexertion may be dangerous to the patient and undue caution can hamper the rehabilitation program.

Not a great deal of study has been devoted to determining the effect on the heart on various types of normal hospital activities. Most studies have been made on normal or abnormal hearts during rest or some standardized condition of exercise. Because of technical requirements during the measurement of cardiac output it has been difficult to test the various activities carried on by patients in the hospital or persons leading sedentary lives. The physiologists interested in the work of the heart have wanted to know the range of cardiac capacity. The cardiologists have usually been more concerned with the problems of valvular inefficiency or demonstration of abnormalities than in attempting to control cardiac work by regulating activity in a quantitative manner.

Recently it has been advocated that cardiac patients be allowed to sit in a chair early in the course of recovery from coronary thrombosis. Although this procedure has been viewed with alarm by some physicians, statistically it compares favorably with prolonged bed rest. The data on cardiac output in this and previous studies indicate that there is less cardiac demand when the patient is sitting with his feet dependent than when he is supine. Clinical observation also supports this finding. The patient with cardiac embarrassment wants to sit with his feet dangling. To place such a patient in a semi-reclining position with the back rest and knee rest up may decrease his muscular activity

very slightly but increase his necessary cardiac work by as much as 15 per cent. Minimal cardiac and metabolic demands occur when the patient is seated in an arm chair with back and head supported and the feet comfortably supported on the floor. The data in this study of the cardiac demand of moving without aid from bed to chair and back indicate a higher cardiac requirement than would be the case if the patient were assisted to sit and to stand. Although these measurements have not been made, it is likely that movement from bed to chair, if done carefully and with assistance, places little demand on the heart.

It is a maxim of medicine that an injured organ should be put at rest so that it may recover more quickly. For many years it has been assumed *a priori* that the recumbent position is the position of least activity for most or all organ systems. This position is referred to as "basal" although that term in actuality only applies to oxygen consumption by the voluntary muscles. The orthopnea of the cardiac patient is usually explained on the basis of changes in the mechanics of respiration rather than on the work requirements of the heart itself. It now appears that the orthopneic position is the position of minimal cardiac work as well as the position of greater ease of respiration.

Although it would be desirable to maintain the severely damaged heart at a condition of minimal or basal work for a number of days to allow recovery, this cannot be done. The activities of digestion and elimination must continue. Emotional stresses due to fears about illness or death, concern over job, family, or future must play a role in determining the level of cardiac output. The patient will move in bed to drink or eat, from discomfort, boredom or anxiety. If he is maintained on enforced "complete rest", these factors probably become more prominent and as a result the cardiac work increases.

For bed-bound patients a change is a rest in that it allows relaxation to occur. To move the patient carefully from bed to a comfortably supporting arm chair places the patient in a physical position of minimal heart work and also helps to relieve emotional tension. The chair position assumed several times a day therefore keeps the cardiac output closer to the minimal level than does absolute bed rest. To assist in relieving emotional tension and anxiety, diversional activities such as reading or occupational therapy crafts requiring the use only of the hands are valuable. The activity allows the patient to forget his problems and results in a decrease of tension. The lightest crafts which require use only of the hands increase the cardiac requirement about

15 and 20 per cent. It is probable that anxiety exerts a much greater driving force than this on the heart.

It is extremely difficult to evaluate the influence on the heart of phasic activities during which there is a momentary increase in energy demand. To what extent these transient changes influence cardiac output is not known. Our data indicate that standing unassisted from a sitting position probably greatly increases the drive on the heart due to suddenly increased metabolic demand. Lying down also may increase cardiac output momentarily because of transiently augmented venous return. Since we were unable to obtain the acetylene absorption during these periods of change and had to make our calculations from acetylene uptake after a period of activity it is reasonable to presume that the calculated values of cardiac output do not represent the full fluctuations of cardiac output due to this work. Sitting up unaided from recumbency or rising unaided to a standing position must be presumed to be activities putting a severe transient strain on the heart. For these activities cardiac patients need help. It may well be that these transient periods of very high cardiac demand as the patient moves in bed, reaches to the bedside table, sits up alone, or stands up alone may overtax the myocardium and result in further damage or death. Protection against these sudden severe stresses with provision for slow changes requiring little increase of cardiac work probably produce the lowest level of cardiac activity that can be maintained. Both the drive of muscular effort and the drive of emotional stress must be avoided if the heart is to be protected against work. During convalescence the gradual addition of activities requiring progressively greater cardiac work appears to be the logical way to restore the myocardium to normal levels of function. During this period of recovery controllable activities of known metabolic and cardiac demand are valuable to help to condition the heart. Since activities in occupational therapy can be quantitated and controlled they appear to be ideal for the purpose of rehabilitation of cardiac patients.

TABLE 1

THE INFLUENCE OF POSITION AND ACTIVITY ON THE METABOLIC DEMAND AS DETERMINED BY THE CONSUMPTION OF OXYGEN

Activity	*No. of Subjects*	*No of Tests*	*Mean Metabolic Demand Cal/M²/hr.*	*Standard Deviation*	*S.E.M.*	*Metabolism % Increase over Supine*
Supine	12	126	33.97	3.731	0.3325	
Reclining at 45° angle	6	60	35.06	3.373	0.4354	3.21
Sitting on chair	6	53	36.22	4.966	0.6820	6.62
Sitting on edge of bed feet supported	3	19	37.70	3.849	0.8830	10.98
Leather tooling in bed 45° angle	4	24	39.59	4.261	0.8696	16.54
Chip carving sitting on chair	5	32	52.34	8.443	1.4924	54.08
Getting into and out of bed	3	17	56.86	4.224	1.0244	64.44
Printing press	5	21	82.05	10.349	2.258	141.54

S.E.M. = Standard error of the Mean

TABLE 2

THE EFFECT OF POSITION AND ACTIVITY ON THE CARDIAC INDEX OF NORMAL YOUNG SUBJECTS

Activity	*No. of Subjects*	*No. of Tests*	*Mean Cardiac Index Liters/M²/min.*	*Standard Deviation*	*S.E.M.*	*Cardiac Index % Increase over Supine*
Supine	11	113	2.50	0.8746	0.0823	
Sitting on edge of bed feet supported	3	19	2.31	0.5432	0.1246	−7.60
Sitting on chair	6	50	2.33	0.4722	0.0668	−6.80
Reclining at 45° angle	5	46	2.69	0.4028	0.0594	7.60
Chip carving sitting on chair	3	32	2.89	0.6172	0.1091	15.60
Leather tooling in bed 45° angle	3	24	3.07	0.9516	0.1942	22.80
Getting into and out of bed	3	17	3.49	0.8750	0.2122	39.60
Printing press	5	21	4.25	0.9506	0.2074	70.00

S.E.M. = Standard error of the Mean

TABLE 3

A COMPARISON OF METABOLIC RATE AND CARDIAC INDEX

Activity	*Metabolism % Increase over Supine*	*Cardiac Index % Increase over Supine*
Reclining at 45° angle	3.21	7.60
Sitting on chair	6.62	−6.80
Sitting on edge of bed feet supported	10.98	−7.60
Leather tooling in bed 45° angle	16.54	22.80
Chip carving sitting on chair	54.08	15.60
Getting into and out of bed	64.44	39.60
Printing press	141.54	70.00

Editorial

What is a Good Doctor?

Most of us would agree that some physicians are better doctors than others. We would very likely find much less agreement among us concerning the criteria which should be used in assessing the excellence of a given physician's practice of his chosen profession.

What is a good doctor? How may we recognize him? We have no formula to offer for making this determination, no electronic computer approach which will answer these difficult questions. We do, however, have some thoughts on the subject which we would like to set down. Let us first examine some of the possible criteria which might be applied.

First, can we correlate financial success with professional excellence? Our answer must be a resounding "No!" Were we to apply this criterion, certain specialists in fields acknowledged generally to be especially rewarding financially would automatically be accorded a status of excellence which they might or might not deserve. Even apart from this consideration we must reject the financial criterion. Personality factors, location, social connections, and a host of other similar considerations may combine in such a manner that a mediocre physician may reap a rich material reward. The converse may occur just as readily. While chances are that, *in a given field of practice,* the good physician will make more money than the less capable one, exceptions are so numerous as to render the income criterion totally unusable.

Does length of training determine the good doctor? Once again, emphatically "No!" Length of training, per se, is an unreliable criterion, for training may be good, bad, or indifferent. Time spent in the postgraduate study of medicine in general or of a particular field, under good training conditions, will certainly help make the physician a good doctor. We would emphasize, however, that such training may be formal or informal, that it is acquisition of knowledge and experience which is important, not the number of years spent in a particular institution. We must not forget that *the really good doctor is in training for his entire life.*

How about the opinions of the doctor's colleagues concerning the

quality of his practice? Do these constitute a dependable guide? Colleague opinions have been used as such a guide in some of the few studies which have been made attempting to assess levels of medical practice. Certainly these have some measure of validity. Physicians are far better able to judge the work of a confrere than are those without medical training. Unfortunately, physicians, like other human beings, cannot always be entirely objective in forming opinions of this type. They will be influenced by such things as personal friendships and antagonisms and old school ties. Colleague opinions, although helpful, must be accepted only with reservations.

What about the opinions of the doctor's patients? After all, is not the satisfaction a patient receives at the hands of the physician the real determinant of the excellence of the care rendered? Patient opinions are of real significance in assessing the quality of a doctor's practice, but we are reluctant to accept them as the final, or even as the single most important, element. Patients' opinions will give us good insight into how the doctor practices the art of medicine, very little into his practice of the science. We are interested in both. A practice of medicine based solely on a good "bedside manner" is like an ocean liner shorn of one of its twin propellers, impressive to observe from afar but likely to experience rough sailing in all but the calmest of seas.

In forming our own opinion about a given physician, we undoubtedly take into account a good many things: what other doctors think of him, what his patients think of him, and our personal biases. There is, however, one most significant question we ask ourselves concerning this man before deciding whether or not he is a good doctor: How does he approach the "tough case," the unusual and difficult problem? This is a question to which only another physician can arrive at a meaningful answer, and it presupposes that we have had an opportunity to observe his practice or the results of his practice rather closely. We are convinced that, within these limits, it is an entirely valid and pertinent question.

Let us hasten to point out that we do not expect our colleague to reach an exact diagnosis in all such instances, or even in a majority of them. He will get no black mark from us for missing the case of onchocerciasis or for failure to recognize an instance of carcinoma of the urachus. What we do want to know is how he *approaches* the unusual problem. First of all, does he recognize the "tough case" or

does it slip past him, unnoticed amid a host of more familiar problems? Having recognized the "tough case," does he get all possible information from the patient's history? Is his physical examination complete and does he repeat it at intervals, both to check on his original findings and to note significant changes? Does he attempt to explain the signs and symptoms on the basis of pathological physiology, or does he merely attempt to fit them into some convenient but perhaps meaningless designation? Does he order, within limits of availability, appropriate laboratory studies, and does he evaluate them in light of the bedside findings? Except in emergency situations where anything of any promise must be used, does he avoid "shotgun therapy"? In particular, does he take care that treatment undertaken will not interfere with future important diagnostic measures in instances where the diagnosis is still in doubt? Does he make use of available medical literature to help him reach a diagnosis and plan rational treatment? Does he secure consultation if appropriate? If, despite his efforts, his patient succumbs, does he continue his study by means of an autopsy in order to be better prepared for another similar instance?

We believe that if we know the answers to these questions, we can answer the question which constitutes the ultimate criterion: Do we want him to take care of us or of members of our family? If we can answer the latter question in the affirmative, we have adjudged him a "good doctor."

We once had opportunity to work with a general practitioner, now dead, on the staff of one of the smaller hospitals in Minneapolis. He was a somewhat testy old gentleman whose "bedside manner" was not smooth, in the usual sense. We doubt that his patients loved him; *loved* would definitely be the wrong word. We believe they respected him immensely, that they knew they would receive meticulous consideration of any medical problem they chose to bring to him. His histories and physical examinations were precise, clear, and brief, containing all significant information. He neither rejected nor placed undue reliance on the laboratory as an aid in diagnosis. Therapy was rationally planned and carried out with utmost care. This was his approach to all patients. The "tough case" meant perhaps that he had to spend a little more time, but the basic tools for its solution were deeply ingrained in him. This was a "good doctor," indeed!

Medical School Activities

Division of Medical Art and Photography

The Medical Art Section of the Division of Medical Art and Photography has moved from its old quarters in Jackson Hall to new and larger quarters in the southwest corner of the University Hospitals on the fifth floor, the area formerly occupied by the Radiology Department. This move is the first step in the organization of the new combined Division of Medical Art and Photography. The Photographic Laboratory will be moved to the new location at a later date.

Director of the new Division is MR. ALVIN SHEMESH, a recent addition to our staff. A native of New Jersey, Mr. Shemesh received his B.A. degree from New York University in 1949 and his M.S. in Anatomy from Harvard in 1953. He also graduated from the School of Medical Illustration at Massachusetts General Hospital in 1953. Prior to his acceptance of the position here, Mr. Shemesh served with the Army Medical Research Laboratory as Head of the X-ray and Technical Photographic Laboratory. The Faculty is happy to have a person of Mr. Shemesh's capabilities as head of this important unit.

All photographic work, except for photomicrographs, and all art work will be handled in the Division's office, M-534 University Hospital. Photomicrographic work will continue to be done by MR. HENRY MORRIS, Ground Floor, Jackson Hall as in the past.

Faculty News

DR. MAURICE B. VISSCHER, *Professor and Head,* Department of Physiology, was re-elected General Secretary of the International Union of Physiological Sciences at the 20th meeting of the International Physiological Congress held in Brussels in August.

DR. JEROME T. SYVERTON, *Professor and Head,* Department of Bacteriology and Immunology, attended the meeting of the International Symposium on Hepatitis in Detroit, Michigan, October 24-26, 1956.

DR. HAROLD O. PETERSON, *Clinical Professor,* Department of Radiology, gave the Pancoast Lecture at Philadelphia on November 1, 1956. His topic was "Intervertebral Disc Disease."

DR. DONN G. MOSSER, *Assistant Professor and Director,* Division of

Radiation Therapy, participated in the Institute on Cancer of the Head and Neck at the University of Nebraska, Lincoln, Nebraska, on November 28 and 29. On November 29 he gave two lectures, "Radiotherapy and Oral Cancer" and "Radiotherapy and Cancer of the Nose and Throat". Dr. Mosser is happy to be able to announce that the second cobalt therapy unit is being installed.

DR. JOEL G. BRUNSON, *Instructor,* Department of Pathology, has been awarded a Senior Research Fellowship from the United States Public Health Service to further his study in pathology at the University of Minnesota.

DR. ROBERT GILBERT, a *Markle Scholar* from the Department of Medicine, Northwestern University, is spending this year in the Department of Physiology working on cardiovascular problems under the direction of DR. MAURICE B. VISSCHER.

DR. ERNST GELLHORN, *Professor,* Division of Neurophysiology, is on sabbatical leave during the current academic year. He and Mrs. Gellhorn are spending the year in Santa Barbara, California, while Professor Gellhorn works on a new book.

In Memoriam

Members of the Faculty were saddened to learn of the death, on October 31, of DR. LYMAN R. CRITCHFIELD, *Clinical Assistant Professor Emeritus* in the Department of Pediatrics. A graduate of the University of Minnesota Medical School in the class of '09, Dr. Critchfield received his training in pediatrics at Children's Memorial Hospital in Chicago. He practiced in St. Paul for many years and served as a member of our Clinical Faculty until his retirement in June, 1954. Dr. Critchfield also served as the Councilor for the Fifth District of the Minnesota State Medical Association and was a member of the Governor's Advisory Committee on Mental Health.

Dr. Critchfield will be remembered for his skill in his chosen field, for his gentle, unassuming manner, and for his life-long interest in medical education. We wish to extend our sympathy to the members of his family who survive him.

Postgraduate Education

Urology for General Physicians

The University of Minnesota announces a continuation course in Urology for General Physicians which will be held at the Center for Continuation Study from January 3 to 5, 1957. Management of the commonly met urological problems will be stressed. The program will be presented under the direction of DR. C. D. CREEVY, *Professor and Director,* Division of Urology. The faculty for the course will include members of the faculties of the University of Minnesota Medical School and the Mayo Foundation.

Dermatology for General Physicians

A continuation course in Dermatology for General Physicians will be presented by the University of Minnesota next January 7 to 9, 1957, at the Center for Continuation Study. Diagnosis and management of those skin disorders most frequently seen in general practice will be emphasized. Guest speaker will be DR. NORMAN F. CONANT, *Professor* of Mycology and *Associate Professor* of Bacteriology, Duke University School of Medicine, Durham, North Carolina. The course will be presented under the direction of DR. HENRY E. MICHELSON, *Professor,* Department of Medicine and *Director,* Division of Dermatology, and the remainder of the faculty will be drawn from the faculties of the University of Minnesota Medical School and the Mayo Foundation.

Notice

All continuation courses presented by the University of Minnesota are approved for formal postgraduate credit by the American Academy of General Practice. Attendance certificates will be furnished on request.

Further information concerning the above programs or others to be presented may be obtained by writing to Dr. Robert B. Howard, 1342 Mayo Memorial, University of Minnesota, Minneapolis 14.

Coming Events

January 3-5 ---------Continuation Course in Urology for General Physicians

January 7-9 ---------Continuation Course in Dermatology for General Physicians

January 7 ----------Hennepin County Medical Society Meeting

January 10 ----------STUDENT AMERICAN MEDICAL ASSOCIATION LECTURE; *Dr. Ancel Keys,* Professor and Director, Laboratory of Physiological Hygiene, University of Minnesota.

January 15 ----------MINNESOTA PATHOLOGICAL SOCIETY LECTURE; "Antibiotics Twenty Years After"; *Dr. Wesley W. Spink,* Professor, Department of Medicine, University of Minnesota Medical School; Owre Amphitheater; 8:00 p.m.

Jan. 31—Feb. 2 ------Continuation Course in Emergency Surgery for General Physicians

February 4 ----------Hennepin County Medical Society Meeting

February 7-9 --------Continuation Course in Cardiovascular Diseases for General Physicians

February 7 ----------GEORGE E. FAHR LECTURE; *Dr. Richard V. Ebert,* Professor and Head, Department of Medicine, University of Arkansas Medical Center, Little Rock, Arkansas; Mayo Memorial Auditorium; 8:00 p.m.

February 11-13 ------Continuation Course in Anesthesiology for General Physicians

February 11-16 ------Continuation Course in Neurology for General Physicians and Specialists

February 13 ----------J. B. JOHNSTON LECTURESHIP; "Human Stereotaxic Surgery and its Applications;" *Dr. Henry T. Wycis,* Temple University Hospital, Philadelphia; Mayo Memorial Auditorium; 8:00 p.m.

Faculty Publications

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KRIVIT, WILLIAM, and GOOD, R. A.: Simultaneous Occurrence of Leukemia and Mongolism. A.M.A. J. Dis. of Child., 91: 211, 1956.

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TRAUB, A., and LICHSTEIN, H. C.: Cell Permeability: A Factor in the Biotin-Oleate Relationship in *Lactobacillus arabinosus.* Arch. Biochem. & Biophysics., 63: 222, 1956.

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WEEKLY CONFERENCES OF GENERAL INTEREST

Physicians Welcome

Monday,	9:00 to 10:50 A.M.	OBSTETRICS AND GYNECOLOGY Old Nursery, Station 57 University Hospitals
	12:30 to 1:30 P.M.	PHYSIOLOGY- PHYSIOLOGICAL CHEMISTRY 214 Millard Hall
	4:00 to 6:00 P.M.	ANESTHESIOLOGY Classroom 100 Mayo Memorial
Tuesday,	12:30 to 1:20 P.M.	PATHOLOGY 104 Jackson Hall
Friday,	7:45 to 9:00 A.M.	PEDIATRICS McQuarrie Pediatric Library, 1450 Mayo Memorial
	8:00 to 10:00 A.M.	NEUROLOGY Station 50, University Hospitals
	9:00 to 10:00 A.M.	MEDICINE Todd Amphitheater, University Hospitals
	1:30 to 2:30 P.M.	DERMATOLOGY Eustis Amphitheater, University Hospitals
Saturday,	7:45 to 9:00 A.M.	ORTHOPEDICS Powell Hall Amphitheater
	9:15 to 11:30 A.M.	SURGERY Todd Amphitheater, University Hospitals

For detailed information concerning all conferences, seminars and ward rounds at University Hospitals, Ancker Hospital, Minneapolis General Hospital and the Minneapolis Veterans Administration Hospital, write to the Editor of the BULLETIN, 1342 Mayo Memorial, University of Minnesota, Minneapolis 14.