The Teacher Interest Profile Registry of AAFP: Implementation and Effectiveness

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In order to assist in the recruitment of physicians from practice into teaching during a period of rapid expansion in family practice education in the United States, the Division of Education of the American Academy of Family Physicians developed a computerized listing of members of the Academy who were interested in being contacted about available faculty positions. This computerized list, containing pertinent information about the professional qualifications of the registrants, became known as the Teacher Interest Profile Registry and was made available upon request to recruiting program administrators in 1974-1975.

An evaluation of the utilization and effectiveness of the registry was conducted by staff of the Division of Education in the spring of 1975 by means of mailed questionnaires to the two groups utilizing the service: program administrators and physician-registrants. Results of these surveys revealed that one out of every eight programs using the registry was successful in recruiting one or more new faculty members, with a total of 27 new faculty reported as having been recruited through the use of this service.

In view of the relative success of this program in identifying potential faculty members and the continued interest and utilization of the service, academy leaders have decided to continue this service until it is no longer effective and/or needed.

In 1974, with the rapid expansion of graduate and undergraduate programs in family practice, there was a pressing need to find physicians who were willing and able to fill the more than 102 full-time budgeted positions which were vacant in US medical school departments of family medicine.[1] In recognition of this need, leaders in the field of family practice education sought new ways to recruit physicians from full-time practice into teaching. Discussions about a viable approach to addressing this problem were begun in February 1974, between the staff in the Division of Education of the American Academy of Family Physicians (AAFP) and directors of family practice programs in the states of Kentucky and Tennessee. These discussions led to the development of the first teacher development workshop for practicing physicians. This was a pilot effort at providing an orientation to academia.

The first workshop was conducted in Nashville, Tennessee, in the summer of 1974 and was well received, with over 160 physicians in attendance. From this experience the sponsors identified three additional services that needed to be incorporated into workshops of this type:

1. a list of names and qualifications of physicians in attendance who were interested in being contacted about unfilled positions in teaching;
2. time and space for private communication between attendees and speakers or recruiters; and
3. input from residents and students as guest speakers.

In view of the success of the pilot workshop, plans were made to implement a series of similar meetings to be supported by a grant from Eli Lilly and Company and supplemented by registration fees.

All AAFP members invited to these workshops were offered the opportunity to enter their names and professional qualifications in a registry which would be made available to requesting family practice educational administrators seeking new faculty. Participating physicians were asked to cite their preference for geographical location so that the profiles could be channeled to educational administrators in the AAFP regions designated by the registrants. The service of providing a computerized listing of names of potential recruits for teaching to requesting family practice education administrators became known as the Teacher Interest Profile Registry (TIPR) and was inaugurated in conjunction with these teacher development workshops.

Development of the TIPR

The registry was developed in the following manner. Announcements about the teacher development workshops were sent to the entire Academy membership. These mailings also invited members to complete an enclosed "Teacher Interest Profile" form if they were interested in being contacted about available positions in teaching programs. Information from each completed form, accompanied by signed permission for release of information, was then entered into the computer at AAFP headquarters. This process yielded a TIPR of 663 names. A breakdown of the entries in the registry by location preference according to AAFP standard regions is presented in Table 1. The professional background of the registrants in terms of board certification status and prior teaching experience is displayed in Table 2. The majority of registrants were board certified and experienced in teaching.

In fall 1974, a letter was sent to all family practice department chairmen and residency program directors to inform them about the TIPR. As of

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Table 1. AAFP Teacher Interest Profile – 1975
Number of Physicians Requesting Teaching Positions in AAFP Standard Regions

AAFP Standard Regions	States			Number Requesting Region
Region 1	Maine Vermont New Hampshire	Massachusetts Connecticut Rhode Island	New York Pennsylvania New Jersey Delaware	150
Region 2	Michigan Wisconsin	Illinois Indiana	Ohio	63
Region 3	Maryland West Virginia Virginia	Washington, DC North Carolina South Carolina	Georgia Florida Puerto Rico Virgin Islands	170
Region 4	Kentucky Tennessee	Alabama Mississippi	Louisiana	75
Region 5	Minnesota Iowa	North Dakota South Dakota	Nebraska	54
Region 6	Montana Wyoming	Colorado Utah	New Mexico	86
Region 7	Missouri Arkansas	Kansas Oklahoma	Texas	76
Region 8	Washington Oregon	Idaho	Alaska	98
Region 9	Nevada California	Arizona	Hawaii	152
Total 9		53		924
Number of Responses Without Specification of Preferred Region				102

April 1976, more than 180 requests were received by AAFP headquarters from family practice education program administrators for a listing of applicants who were available in specific geographical areas.

Evaluation of the Registry

An evaluation of the utilization and effectiveness of the registry was conducted in two stages in the spring of 1975. The first stage consisted of a survey of family practice program directors and department chairmen to determine their utilization of the registry; the second stage was a survey of TIP registrants for the purpose of ascertaining how many assumed new teaching responsibilities after being listed on the registry.

Subjects and Procedures

In the first-stage evaluation, all program directors and department chairmen were requested to complete a questionnaire rating the relative effectiveness of this program in helping them to locate and recruit physicians from practice into teaching programs and specifying the number of faculty recruited into their programs through use of the registry.

The second-stage evaluation of the effectiveness of the TIPR consisted of a survey of all 663 physicians who had submitted a profile for inclusion in the registry. This questionnaire inquired about the influence of the TIPR upon the subjects' acceptance of teaching appointments during 1975.

Results

In the first stage survey 212 (70 percent) out of 302 responded. Of those administrators responding, 104 (49.6 percent) indicated that they had used the registry service, while 108 (50.4 percent) said they did not. When asked to rate the effectiveness of the registry as an aid to teacher recruitment, all but six of the respondents rated the TIPR as less than moderately effective. The greatest number of respondents gave an ineffective rating to the program (n = 30).

Despite the large number of programs that rated the TIPR as ineffective, one out of every eight programs using the registry was successful in

recruiting one or more new faculty members, with a total of 14 programs reporting success with the use of the names provided. The numbers of faculty recruited into each of these 14 programs varied considerably. In fact, one program indicated that they had recruited a grand total of six new faculty members by this method. The presentation of the frequency distribution of how many faculty members were recruited into each program (Table 3) indicated that the majority of the programs (n = 8) each obtained one new faculty member by this method. Reportedly, 27 new faculty members were recruited through use of the TIPR.

Table 2
Professional Qualifications of Physicians on TIPR 1974-1975

	Number	Percent
Board Certification Status		
Board Certified	387	58.4
Not Board Certified	276	41.6
Total	663	100.0
Prior Teaching Experience		
Yes	475	71.6
No	188	28.4
Total	663	100.0

In the second stage survey, 509 (79 percent) of the registrants responded. Of this number 362 (71 percent) indicated that they would like to continue their name on the registry. In response to the question of whether they were contacted by faculty recruiters who might have received their names from the TIPR listings, 247 (50.4 percent) indicated they had not been contacted. An almost equivalent number, or 243 registrants (49.6 percent), were contacted by teacher recruiters an average of 5.78 times. However, 106 (42.4 percent) of this group never responded to these contacts. Those who did respond numbered 144 (57.6 percent). Of that number, 27 assumed new teaching responsibilities.

The breakdown of the type of teaching responsibilities assumed by these 27 new recruits is presented in Table 4. Since the total number of registrants distributed among the three types of teaching positions adds up to a total of 43 rather than 27 new positions, we can only interpret this to mean that additional responses (beyond 27) to this question represent those who entered teaching, but not as a result of being listed on the registry. Nevertheless, if one accepts the relative distribution among the three types of teaching positions as also being representative of the 27 new recruits through the registry, one can conclude that the distribution of physicians into new teaching positions was fairly evenly distributed between full-time (2.2 percent) and part-time (2.6 percent), with the largest percentage entering volunteer positions (3.7 percent).

Table 3. Modal Distribution of Number of Faculty Recruited by Programs Using the Teacher Interest Profile

Number of Faculty Per Program	Number of Programs	Total Number of Faculty Recruited
0	90	0
1	8	8
2	2	4
3	3	9
6	1	6
Total	104	27

Discussion

Even though the administrators who used the TIPR rated it as less than effective, if one measures the success of the registry by its overall ability to assist in the recruitment of physicians into teaching, it did accomplish that goal. Also, since 71 percent of last year's registrants said that they would like to have their names continued on the registry in 1976-1977, this provides some indication that the registrant group still has faith in the program as a vehicle for placement.

In consideration of the large number of physicians (106) who did not respond to solicitations that they received from recruiting administrators, one could also conclude that a percentage of the repeaters on the registry may not be serious about a move into teaching, or may be very particular in responding to offers made to them.

Since the need for recruiting family practice educators from the ranks of practicing physicians is expected to continue until the number of new residency graduates is sufficient to supply manpower for teaching, it seems appropriate to continue the registry service until the practicing physician source for teaching manpower has been exhausted.

Reference

1. Summary Report of Conference on Faculty Development Needs in Family Medicine. Division of Medicine, Institutional Resources Branch, US Department of Health, Education and Welfare, Bethesda, Maryland, October 23-24, 1975. Bethesda, DHEW Publication, March, 1976, p 1

Table 4
Types of Teaching Positions Assumed by Family Physicians Recruited by Use of Teacher Interest Profile Registry

Type of Teaching Position	Number	Percent
Full-time, paid	11	2.2
Part-time, paid	13	2.6
Volunteer	19	3.7
No new teaching position	466	91.6

Continued from page 512

tures contracts. The holding period for agricultural commodity futures contracts remains at more than six months. There is an additional change in the Tax Reform Act relating to capital loss deductions Under the prior law, an individual was permitted to use up to a maximum of $1,000 of capital loss as a reduction against his ordinary income. The Tax Reform Act now permits a reduction of $2,000 of ordinary income beginning in 1977, and a $3,000 maximum offset for taxable years, beginning after 1977. Short-term capital losses are permitted to offset ordinary income on a dollar-for-dollar basis; long-term capital losses offset ordinary income on a 50 percent basis. In other words, in 1977 in order to receive the maximum offset of $2,000, it would be necessary to have a long-term capital loss of $4,000; or in taxable years after 1977 to receive the maximum offset, it would be necessary to have a long-term capital loss of $6,000.

The Tax Reform Act contains many changes in the tax law which are related to special-interest business operations. In reviewing the law, it appears that most of these provisions would not have any effect on the operation of a physician's practice. However, there is a possibility that a unique situation might exist in which few physicians in the United States would be affected by one of these provisions. Therefore, it is the advice of the author that physicians should be in close contact with their tax advisors when filing tax returns for 1976 and later years, to ensure that one of these provisions has not changed their particular tax situation.

There are two additional articles planned for this series dealing with the Tax Reform Act of 1976. One article dealing with the changes relating to the estate and gift sections of the tax law, and another article relating to those areas which are known as tax shelters. Certain provisions of the law have not been covered in the articles to this point, because they relate primarily to those particular items.

Continued from page 427

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Clinical Managment of Sexual Disorders. *Jon K. Meyer (ed). Williams and Wilkins Company, Baltimore, 1976, 284 pp., price not available.*

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Continued from page 500

the more standardized ratings made by different observers in different settings, the greater the likelihood that the physician will obtain a true picture of the effect of medication. The author recommends that the physician use the Conners Parent Symptom Questionnaire (PSQ), the Conners Teacher Questionnaire (TQ), the Conners Abbreviated Symptom Questionnaire (ASQ), and the Rutter-Graham Psychiatric Rating Scale for children as baseline and follow-up measures to judge the effectiveness of the medical (Department of Health, Education, and Welfare 1973). The Conners Teacher Questionnaire seems to be the most widely used teacher evaluation procedure for hyperactive children. Normative data are available; it has been shown to clearly distinguish normal children from hyperactive children and to be quantitatively very sensitive to the behavioral effects of psychotropic drugs (Sprague et al 1974, Sprague and Werry 1974).

Ten items on the PSQ and TQ are identical and have been combined to form an Abbreviated Symptom Questionnaire (ASQ), which can be used by the physician to obtain frequent follow-up assessments of the child from both parents and teachers. This abbreviated scale has been found to have almost the same sensitivity in obtaining statistically significant differences in psychotropic drug studies with hyperactive children (Sprague and Werry 1974).

The Rutter-Graham Rating Scale contains specific items of behavior to be rates, based on observation of the child during the interview or on what the child has to say during the interview. In epidemiologic studies, this scale has been shown to be a valid and reliable indicator of psychiatric illness in children (Rutter et al 1970b).

4. Side effects should be assessed and monitored in the same systematic fashion as expected behavioral effects of the medication. There are systematic rating sheets for side effects to be completed by parents and to be asked of the children, which are quite effective for this purpose (Gofman 1973).

5. The initial dose should be the smallest available dose of the medication being used. A knowledge of the duration of action of the medication is necessary in order to know whether to prescribe the drug on a once-a-day basis or two- or three-times-a-day, depending on how long the physician wishes the medication to be effective. Starting with the low dose, the physician should then titrate the medication and raise the dose until either clinical improvement is noted or side effects occur, which necessitate discontinuation of the drug. At present there are no laboratory or other measures against which one can titrate the medication. The physician must use his clinical judgment based on the information he obtains from the parents, the school, and from his own observation of the child.

While there are *rough* guidelines that can be used for optimal dose of individual drugs on a milligram per kilogram body weight basis, this is a controversial area. For example, Wender (1971) has advocated a high dose of 1.5 mg/kg of D-amphetamine and a high dose of 4.6 mg/kg of methylphenidate. Sprague and his colleagues have conducted laboratory studies showing that teacher ratings show an increased improvement in behavior ratings up to doses of 0.70 and 1.00 mg/kg of methylphenidate. However, this dose is double that at which the peak enhancement of cognitive performance occurs (Sprague and Sleator 1973).

It is well to remember that children considered nonresponders to medication often simply have not been given an effective dose (Conners 1972, Wender 1971). Tolerance does develop (Arnold 1973), and just as the amount of medication that an individual child might require is highly idiosyncratic, so is the development of tolerance.

6. All children should be given a drug-free trial at some time during the course of a year if they are on medication chronically. There are several ways to do this. One is by substituting placebo without letting the child or the schoolteacher know and obtaining a rating scale to see if behavior has deteriorated. Another is to let the child go back to school in September without being on medication, and after several weeks obtain a rating scale to see how it compares with that obtained at the end of the school year when he was on medication. If it looks like the child no longer requires medication, he should be followed more closely to see if his behavior deteriorates over time. Abstinence syndromes do not seem to develop during a drug-free trial.

At present there is no good method for determining when a child should be taken off medication completely, other than by clinical judgment. Certainly the popular idea that the hyperactive child syndrome disappears and medication has a "reverse effect" at puberty has never been established scientifically. The medication should not be stopped because a child reaches a certain age, but only when the clinical picture indicates the child no longer requires it.

7. A good deal of *psychotherapy*, using the term in the broad sense, must be done with both the child and the parents in conjunction with the use of medication. At the very least, the treating physician should help the hyperactive child understand the nature of his difficulties and how the medication (and other therapeutic intervention) is intended to help the child help himself. The role and action of the medication in his life then can make more sense to the hyperactive child and he will hopefully see the medication as one of *his* tools, not something forced on him by his parents, his teachers, or his doctor (Wender 1971).

The parents should also be prepared in a rational way for a trial of any medication and possible failure of that trial. Expected side effects should also be gone over in great detail and the parents encouraged to observe their child carefully for any likely side effects. The time invested in this type of preparation of the child and his family will reap its benefits should medication have to be changed or should dosage have to be changed over a long period of time in order to find the optimal dose of the optimal drug for each child.

8. An important and often neglected part of the physician's work in treating hyperactive children with medication is establishing contact with the school. The physician should make direct contact with the child's teacher, either in person or over the phone.

Continued on page 542

Continued from page 541

Without cooperation from the school in reporting both positive and negative effects of the medication, it is the author's opinion that it is impossible to effectively manage a hyperactive child on any medication. The teacher is likely to be the only person to see the child regularly in a group setting, where he is required to do the same tasks as a large number of his peers of the same age. Thus in a sense the teacher is in a position to compare the performance of the hyperactive child with a nonhyperactive control group on a daily basis. This is not meant to imply that the teacher has control of either the prescribing or the regulation of medication dosage, but that the physician needs to be in contact with the teacher so that he can make proper adjustments in the dose of medication.

Specific Drugs Used to Treat Hyperactive Children

Most of the literature on treatment of the hyperactive child syndrome consists of reports of drug treatment. Since several critical reviews of this voluminous literature are available (Conners 1972, Werry and Sprague 1972), only selected aspects of clinical importance will be discussed here.

Central Nervous System Stimulants

The central nervous system stimulants, methylphenidate and D-amphetamine, are currently the drugs of choice in the treatment of hyperactive children. Improvement in behavior can be expected in five to ten percent (Cantwell 1975e).

The therapeutic properties and side effects of the two medications are very similar. They both seem to act by potentiating norepinephrine and dopamine at central synapses (Ferris et al 1972). The latency of onset of action for both stimulants is approximately 30 minutes, with a three to six-hour duration of action. Methylphenidate must be given at least twice a day to ensure an effective dose throughout the school day. If D-amphetamine is given in the long-acting spansule, it need be given only once a day. Both drugs decrease hyperactivity and impulsivity and increase attention span. The total amount of bodily activity may actually be increased by the stimulants. The crucial change is an increase in *directed* or *controlled* motor activity. The stimulants have also been shown to produce small improvements in tests of general intelligence and visual motor perception and to enhance performance in learning tasks (Werry et at 1970). Memory for material learned while under the drug persists when medication is stopped; thus state dependency does not occur (Sprague 1972). Most hyperactive children who respond to one stimulant will respond to the other, but certain hyperactive children respond only to one (Winsberg et al 1974).

Anorexia, insomnia, headache, stomachache, nausea, tearfulness, and pallor are common side effects with both stimulants, but anorexia and insomnia seem more frequent and more severe with D-amphetamine. While it is generally stated that stimulants are not thought to produce euphoria in children, there has been very little systematic work on the effects of stimulant medication on mood. Long-term use of stimulants is known to produce depression in adults. This side effect is rarely mentioned in the literature on stimulant drug treatment of hyperactive children. However, the author has had several children who developed mild to moderate depressive episodes during the course of treatment with both methylphenidate and amphetamine. These episodes required cessation of or a reduction in the dose of stimulant plus the use of imipramine, following which the depression lifted. Since depression in children may be difficult to detect, particularly in a child who was previously hyperactive, it should be looked for systematically in children receiving stimulant medication. Children who suddenly develop a dysphoric mood, whether constant, intermittent, or fluctuating, and who also present with a marked change in behavior, such as loss of self-confidence, withdrawal from social intercourse, school refusal, and somatic symptoms should be suspected of having a depressive disorder.

There does not seem to be a predilection for hyperactive children, who have been medicated, to become drug abusers (Freedman 1971). There is some suggestion that suppression of weight and height may occur with prolonged use of D-amphetamine, and suppression of weight, but not height, with methylphenidate (Safer and Allen 1973). However, the results are inconsistent. The effects on growth seem to be related to the anorexia caused by the medication. The children simply eat less while on the medication, and return to previous growth patterns has been demonstrated when the children are taken off the drug (Safer and Allen 1973, Schain and Reynard 1975). Repeated measurements of height and weight of all children on medication should be charted on standard growth curves.

In children in whom weight loss becomes a significant problem some simple measures might be tried. Having the child eat a large breakfast before giving him his medication in the morning and/or having him eat a large supper when the effect of the medication has generally worn off has been found to be effective by the author. Also, if the child can be maintained off medication on weekends and during the summer, his appetite will usually improve, helping to alleviate some of the effects of decreased appetite that occur when the child is on medication. It is possible that appetite stimulants might also be tried. However the author is unaware of any systematic studies in which this has been done.

Clinical experience suggests that most side effects of medication usually subside with time (Eisenberg 1972). However, more systematic investigations of long-term effects of the use of stimulant medications are sorely needed.

Little is known about the predictors of treatment response or about the mechanism of action of stimulant

Continued on page 543

Continued from page 542

drugs. The presence of "organic factors" has been claimed by a number of authors (Satterfield 1973) to predict a good response to stimulant treatment, but the findings have not always been consistent (Werry 1968).

In one of the few attempts to discover clinical predictors of response, Barcai (1971) found both the clinical interview and a "finger twitch test" to be useful in differentiating responders to amphetamine from nonresponders. With the child sitting opposite the examiner, hands hung between his knees in a normal position with the fingers moderately flexed, the interval between the start of the test and the time of the first twitch of a hand or finger was recorded. The finger twitch appeared in all nonresponders after 25 seconds and in 18 of 21 positive or equivocal responders before 25 seconds had elapsed. Items from the clinical interview with the child found most helpful in differentiating responders, of: excess body movements, poor language ability, lack of ability to abstract and use imagination constructively, lack of adjustment to the values of society, and lack of planning ability.

Satterfield (1973) found that drug response was unrelated to family background while Conrad and Insel (1967) found that children whose parents were rated as "grossly deviant" or "socially incompetent" were less likely to respond positively to medication, even in the presence of other factors that tended to predict a good response. Other authors have noted that the attitude of the family to the child's taking medication is likely to affect treatment response. However, few studies have attempted to look at family variables in a systematic way.

In a series of studies, Satterfield and his associates (Satterfield et al 1974) found nine predictors of response to methylphenidate: low skin conductance level, high amplitude electroencephalogram, high energy in the low frequency band of the electroencephalogram, large amplitude evoked cortical response, slow recovery of the evoked response, an abnormal electroencephalogram, four or more "soft signs" on neurologic exam, more behavioral abnormalities reported by the teacher, and age (older children had a better response). Six of these predictors were electrophysiologic measures consistent with the hypothesis that the pathophysiology of most children with the hyperactive child syndrome is a low central nervous system arousal level.

Wender (1971) has proposed that the metabolism of the central neurotransmitters, serotonin, norepinephrine, and dopamine is abnormal in hyperactive children. He feels that the biochemical abnormality affects the behavior of these children by impairing the reward mechanism and the activating system of the brain. Thus he hypothesizes that these children have a diminished capacity for positive and negative affect, which he terms *anhedonia.* The differential effect of the two isomers of amphetamine, L-amphetamine and D-amphetamine, on the behavior of hyperactive children (Arnold et al 1973) offers indirect evidence that in some hyperactive children the disorder is mediated by dopaminergic systems and in others by norepinephrinergic systems. More direct studies of a possible metabolic abnormality have been limited. Wender et al (1971) failed to detect any difference in the metabolities of serotonin, norepinephrine, or dopamine in the urine of hyperactive children as compared to a group of normal children. However, the study population was very heterogeneous. Wender (1969) did find very low concentrations of serotonin in the blood platelets of three hyperactive children, all of whom were from the same family. In the rest of the study population the platelet serotonin levels were normal or in the borderline range. Coleman (1971) demonstrated low platelet serotonin concentrations in 88 percent of 25 hyperactive children. The two most hyperactive children in the group were studied in a research ward. Interestingly the serotonin concentration rose toward the normal range and the hyperactivity of the children lessened during the hospital stay. When both children returned home, the serotonin values dropped to prehospitalization levels and hyperactivity increased. Urinary monoamine metabolites in both of these children remained within normal limits during their hospital stay. Rapoport et al (1970) did find an inverse relationship between the degree of hyperactive behavior and urinary norepinephrine excretion within a group of hyperactive boys, but the mean 24-hour urinary catecholamine excretion did not differentiate the hyperactive group from a normal comparison group. In addition, there was an inverse relationship between response of the hyperactivity to D-amphetamine and urinary norepinephrine levels.

More systematic research in this area is sorely needed, with careful, comprehensive consideration of stimulus factors, response parameters, and social, familial, and organismic factors that might be related to treatment response (Conners 1972).

Other stimulants have also been tried. Magnesium pemoline (Cylert) is a weak central nervous system stimulant which has the advantage of a long duration of action so that one daily dose is sufficient. Preliminary results indicate that it decreases hyperactivity and produces improvement on the Performance Scale of the WISC (Conners et al 1972; Millichap 1973). Deanol also acts as a central nervous system stimulant, possibly by being converted to acetylcholine within neurons. A recent review of the literature indicates that the better controlled studies with Deanol tended to show little or no drug effect and it is no longer considered to have any value in the treatment of hyperactive children (Conners 1973). Coffee (with caffeine the presumed active ingredient) twice a day has been reported to be as effective as methylphenidate in one study (Schnackenberg 1973). Preliminary results of well-controlled studies using caffeine tablets fail to substantiate this finding (Garfinkel et al 1975). The side effects of these central nervous system stimulants are similar to those of methylphenidate and D-amphetamine.

Antidepressants

The tricyclic antidepressant imipramine (Tofranil) has been found to be effective with 45 to 85 percent of hyperactive children by different investigators (Waizer et al 1974, Rapoport et al 1974). Mean doses in these studies ranged from 50 to 175 mg per day and this could explain the differences in results. However, the mean dose in the Huessy and Wright (1970)

Continued on page 544

Continued from page 543

study was only 50 mg per day and they were able to employ a single bedtime dose with the therapeutic effect being evident the *next day*. This is distinctly different from the antidepressant effect of these medications, which take two to three weeks to occur. This nighttime dosage schedule offers a distinct advantage if future studies support the efficacy of imipramine. However, there is some indication that the likelihood of toxicity from imipramine is increased by a single dose at nighttime (Winsberg et al 1976). Main side effects include anorexia, nausea, weight loss, insomnia, and dry mouth. The results of the above studies are promising and in the future imipramine may be one of the major drugs used to treat hyperactive children. However, as of yet imipramine is not approved by the FDA for use with children under the age of 12, except for enuresis. Moreover, due to recent reports of EKG abnormalities in children treated with imipramine (Winsberg et al 1975) the FDA has decided to approve investigational protocols for the use of imipramine only within certain dose ranges for children of specified body weights, with regular EKG monitoring recommended.

Sedatives

There is general agreement that sedatives such as phenobarbital are usually contraindicated for hyperactive children (Conners 1972).

Antipsychotic and Antianxiety Agents

The rather large literature on the use of antipsychotic and antianxiety agents consists of mostly uncontrolled studies and contradictory findings (Sprague and Werry 1971). There is general agreement that the major tranquilizers produce deleterious effects on learning and cognitive functioning (Conners 1971).

Thioridazine (Mellaril) appears to be the most effective of the phenothiazines used with hyperactive children, although it has been used primarily in hyperactive children who are also mentally retarded and/or have demonstrable brain damage. By and large the phenothiazines are not as effective as the stimulant medications when used alone and are potentially more toxic (Conners 1972).

Antihistamines

Although the antihistamine diphenhydramine (Benadryl) has been advocated by some (probably due to its sedative effect), the efficacy of this medication with hyperactive children has not yet been proven in a comparative trial using objective measures of evaluation (Fish 1975).

Anticonvulsants

The anticonvulsants are useful for the treatment of children with hyperactivity only if they also have epileptic seizures. There is no evidence that in the absence of seizure activity anticonvulsants are indicated for hyperactive children who have abnormal electroencephalograms. All drugs should be used to treat illnesses, not abnormal laboratory tests (Cantwell 1975e).

Lithium Carbonate

Lithium carbonate has been tried with varying success by several investigators (Greenhill et al 1973), but it is not as effective as the stimulants in treatment of the usual hyperactive child. In the extremely rare case of mania presenting with hyperactivity in a prepubertal child, lithium carbonate may be the treatment of choice.

Unanswered Questions About the Hyperactive Child Syndrome

While there is a large literature on the hyperactive child syndrome, there are a number of important unanswered questions about the syndrome that future investigations should focus on. Among these are the following:

How can children with the syndrome be divided into meaningful subgroups whose conditions differ in etiology, prognosis, and response to treatment?

What percentage of children with the hyperactive syndrome recover completely and at what age do they do so?

What are the factors within the child, within his family, or within his social milieu that predict which hyperactive child will develop into a healthy adult and which child will manifest in later life social and psychiatric pathology?

What treatment modalities influence the later life development of the hyperactive child and how do they do so?

These questions can only be answered by careful, long-term, prospective studies of large groups of hyperactive children, viewed from several different theoretical frameworks at several different points in time. The rewards from such investigative efforts should be great. In the meantime we must use all the therapeutic modalities at our disposal to intervene in children with this syndrome to prevent the poor outcome that now seems to be prevalent in a significant number (Cantwell 1975c). Although there is good evidence from double-blind controlled studies that stimulant medication is quite effective in reducing the maladaptive behavior and in improving learning in hyperactive children, none of these studies has demonstrated long-term efficacy or long-term safety. This is a critical research area for the future (Cantwell 1975c).

Summary

A critical review of the literature dealing with treatment of the hyperactive child reveals the following:

1. Central nervous system stimulants are effective for some symptoms with some children over the short term. Methylphenidate (Ritalin) seems to be the drug of choice with the amphetamines next in line.

2. Other drugs, in general, have not been found to be as effective as the stimulants, though the tricyclic antidepressant imipramine shows promise.

3. Little is known about how to predict whether an individual child will respond to a particular drug. However, several studies of groups of children indicate that there are neurologic, neurophysiologic, and family factors that are important predictors of response.

4. More information is needed about the long-term efficacy and safety of the medications currently used to treat hyperactive children.

5. Studies of other treatment modalities used with hyperactive children are fewer in number than the reports of drug studies and little is known about their long-term effects.

Continued on page 545

Continued from page 544

6. Involvement of the family is critical to the success of any management program with hyperactive children, but familial factors are rarely mentioned in studies of treatment.

7. Successful management of an individual hyperactive child will involve the use of multiple treatment approaches.

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Book Excerpts

Continued on page 549

Continued from page 545

Psychotherapeutic Drugs in Aging

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Background

The population of older Americans, that is, those 65 years of age and older, is increasing at a more accelerated rate than that of the population at large. Persons past the age of 65 now comprise about 21 million Americans, those above age 60, about 27 million, and their number (and proportion of the population) will continue to grow for at least two decades. The extent of emotional disorders, significant enough to be labeled psychiatric disease, probably ranges from 20 to 45 percent among aged persons in the community. In a recent survey of nursing home patients, the prevalence of conditions that could be identified as requiring psychiatric intervention ranged from 62 percent upward (Office of Secretary, HEW 1975).

It is no surprise, therefore, that there is reported to be extensive use of psychopharmacologic agents by aged patients, especially those in supervised residential settings. A recent statement indicates that 75 percent of all nursing home patients are receiving at least one such medication (Nursing Home Care in US 1974).

This article will give a brief review of the information available in geriatric psychopharmacology, identify factors affecting drug efficacy as these involve the elderly, and discuss the special problems encountered in the use of psychotropic drugs for older patients.

Pharmacokinetics

The pharmacokinetics of any drug involves absorption, distribution, metabolism, receptor state activity, and elimination. An identical dose of diazepam will result in lower blood concentration and longer blood half-life in elderly versus younger patients (Garattine et al 1973). These age-related changes are probably secondary to decreased drug absorption, metabolism, and drug elimination in the elderly (Bender 1974). With advancing age, lean body mass is replaced by fat (Gregerman and Bierman 1974), which also affects distribution and acts further to increase retention of lipid-soluble psychotropic drugs. On clinical grounds, several investigators have suggested the presence of absorption difficulties in older patients such that the use of alternative routes of delivery, such as liquid concentrate or parenteral administration, may yield differences in action.

As demonstrated with analgesics (Bellville et al 1971), age dependent changes in drug activity can occur as a result of altered receptor sensitivity without change in the drug level in blood or tissue. Frolkis et al (1972) performed a number of studies indicating that there is greater sensitivity to neurotransmitters and that as much as 20 to 50 percent less neurotransmitter substance is required to initiate end-organ response in the aged organism.

Side Effects

The widespread clinical impression that aged patients are more susceptible than young patients to adverse drug reactions (side effects) from most classes of drugs is probably accurate. In a review of the records of both psychiatric and general medical inpatients, Hurwitz (1969) found side effects in 21.3 percent of patients age 70 to 79, compared to 7.5 percent for patients 40 to 49 years, and 3.0 percent for those 20 to 29 years. Women had a higher risk of side effects than did men. These figures are consistent with those of Learoyd (1972) who noted that, of the patients admitted to his psychogeriatric ward, 16 percent presented disorders directly attributed to undesirable side effects of the psychoactive drugs they had received prior to admission. Among the major categories of adverse effects were drug intoxications with increased lethargy; confusion and disorientation; paradoxic behavioral reactions, such as restlessness, agitation, and aggressions; and medical effects such as hypotension, respiratory depression, and urinary retention. Common offenders included various antipsychotic, antidepressant, and antianxiety agents, often prescribed in a multiple drug regimen.

Antipsychotic Drugs

The Diagnostic and Statistical Manual of Mental Disorder (DSM-II) (APA, 1968) defines psychosis broadly. The term applies to the patient with an acute schizophreniform illness and no evidence of dementia, as well as to the patient with a chronic dementia (organic brain syndrome) without hallucinations, or illogical thinking, but who is crippled by general intellectual impairment. Compounding the problem are three groups of elderly psychotic patients: those with long-standing chronic schizophrenia; those with dementia who have developed schizophreniform symptoms; and those with chronic dementia without schizophreniform symptoms, but who show behavior (agitation, irritability, assaultiveness, and so forth) that causes marked distress to themselves or to those in their environment.

Impressionistic reports of efficacy for many antipsychotic drugs have appeared, claiming the relief of almost any imaginable behavioral symptom of elderly patients. Fortunately, some controlled studies are also available. Honigfeld et al (1965) demonstrated that phenothiazines were decidedly superior to placebo in treating such areas as motor disturbances, conceptual disorganization, manifest psychosis, and personal neatness. Haloperidol, for example, is effective in alleviating agitation, overactivity, and hostility in patients with chronic organic brain syndrome. Chlorpromazine and thioridazine are also useful in the treatment of organic brain syndrome.

In balance, it appears that the antipsychotic drugs in adequate dosage are probably effective for symptom relief in both elderly chronic schizophrenics and behaviorally disturbed patients with chronic organic brain syndrome, especially if the patients are acutely disturbed. Such effects, however, are less consistent than in younger patients. The paranoid schizophreniform psychosis of later life, so-called paraphrenia, is allegedly responsive to antipsychotic drugs (Post 1965); but no clinical studies with this difficult group of patients have been reported and there is no evidence that these drugs are effective for reversal of memory impairment, confusion, or intellectual deterioration in the patient with a chronic organic brain syndrome. There is also no evidence at this time that one antipsychotic agent is more effective than another in this age group.

Continued on page 550

Continued from page 549

Adverse Effects

Short-term use of antipsychotic drugs may lead to peripheral and central anticholinergic effects and undesirable medical and neurologic effects. Paradoxically, increased confusion in patients treated with antipsychotic agents, especially if an antiparkinsonian agent is administered concurrently, is usually secondary to central anticholinergic toxicity (Yousef et al 1973). This phenomenon is common in the elderly patient, particularly if some degree of organic dementia is also present. It is crucial to realize that increased confusion in a patient receiving antipsychotic agents may well be an adverse drug effect, and temporarily discontinuing all medications with anticholinergic activity (antipsychotic agents, antiparkinsonian agents other than levodopa, and tricyclic antidepressants) should be considered. Although antipsychotic medication has not been associated with striking cardiotoxicity in elderly patients, electrocardiogram abnormalities have been seen and caution must be observed.

The recent recognition of tardive dyskinesia as an adverse effect of the administration of antipsychotic drugs is especially pertinent to the elderly patient. This syndrome of buccofaciolingual involuntary movements, occasionally accompanied by choreoathetoid movements of the extremities and trunk, is reported more commonly among elderly patients. This is both because of a heightened incidence of extended antipsychotic drug administration in elderly chronic schizophrenics, but may be related to the physiognomic relationship that ill-fitting dentures or the edentulous state bears to this syndrome. Although professionals may tend to dismiss cosmetic factors as unimportant to the elderly patient, advancing age is often accompanied by a heightened self-consciousness of unattractive physical appearance, and may lead to social withdrawal and despondency in the case of a severe tardive dyskinesia. Steps to reduce the incidence of this phenomenon in elderly patients include reduction of dosage to the lowest level clinically possible, as well as trials without medication. Anticholinergic medications may actually increase the intensity duration and perhaps appearance of tardive dyskinesia.

Antidepressants

Depression is the most common psychiatric illness of the elderly. Unfortunately, much depressive illness is overlooked or accepted as "just growing old," because of the similarity of depressive symptomatology to the common stereotype of the withdrawn, listless, pessimistic elderly person. To further complicate diagnosis, depression can mimic dementia in the older patient (Post 1965), with transient confusion, disorientation, and impaired intellectual function accompanying the affective episode. This "pseudodementia" will clear as the depression responds to treatment. There is, however, a risk that untreated depression may lead to secondary nutritional deficiency disease, institutional placement, social isolation, and a deepening withdrawal syndrome.

A further barrier to the detection of depression in the elderly is the high incidence of masked depression, presenting as somatic complaints or hypochondriasis. DeAlarcon (1964) found hypochondriac symptoms to be more common among the aged as the first manifestation of depression in 29.1 percent of 152 depressed patients over the age of 60 years admitted to the Bethlem Royal Hospital. Somatic complaints typically preceded the appearance of overtly depressive symptoms in these patients by 2 to 3 months. Only 20 percent of these patients had a history of excessive bodily preoccupation in earlier life.

Antidepressant drugs include the monoamine oxydase inhibitors, the tricyclics, and for our purposes in this context, stimulant medications. Of the classes of antidepressant drugs available, the monoamine oxidase inhibitors appear least suitable for use in the elderly. While they are effective drugs, their capacity to produce both hypotensive and hypertensive episodes, the latter usually precipitated by ingestion of foods rich in tryamine, is especially hazardous in elderly patients with already compromised cardiovascular systems.

Stimulants, especially sympathomimetic drugs such as methylphenidate and D-amphetamine, have received some attention as geriatric antidepressants. Some clinicians have successfully used them over brief periods of time for the treatment of mild depressions. However, adverse effects of these agents with time include dysphoric mood, irritability, anorexia and weight loss, and production or exacerbation of paranoid symptoms with extended use. These drugs should be avoided in patients with a history of paranoid ideation or drug abuse.

The tricyclic antidepressants are effective agents and are widely used with the elderly. Few clinical studies have specifically examined their efficacy in the depressed geriatric patient (Chien et al 1973). Numerous studies (Davis 1974) have indicated that the antipsychotic drugs are effective in the treatment of agitated depressions, perhaps more so than the tricyclic antidepressants. For elderly depressed patients, controlled trials of various tricyclic antidepressants and antipsychotic agents with demonstrated potency are clearly needed.

Side Effects

Those adverse reactions with special relevance for the elderly will be mentioned here. Orthostatic hypotension is a greater hazard, and those elderly with circulatory problems must be instructed to change from a supine to a sitting or standing position slowly and with careful attention to the onset of dizziness. Like some phenothiazines, tricyclic antidepressants block the action of guanethidine, a frequently used antihypertensive medication for the aged. The peripheral anticholinergic actions of the tricyclics can delay or halt micturition, produce constipation, or precipitate acute glaucoma. Implications are obvious for the elderly patient. Dryness of the mouth, although usually benign, may lead to water intoxication in patients on diuretics. The risk of producing a central anticholinergic confusion syndrome is especially high in elderly patients with a chronic organic brain syndrome. Because of cardiac toxicity, tricyclic antidepressant agents must be administered cautiously to elderly patients.

Antimanic Drugs

Lithium carbonate is effective in the treatment of acute mania and lowers the incidence of exacerbations of manic depressive disease. This illness may first be detected in later life and certainly continues into old age in patients who had developed the disease earlier. Prien et al (1974) found

Continued on page 551

Continued from page 550

lithium equally efficacious in elderly and young patients, supporting the clinical impression that lithium is useful in elderly manic patients.

Elderly patients develop lithium central nervous system and neuromuscular toxicity at lower serum levels than do young patients (Van Der Velde 1971). Furthermore, the half-life of lithium increases from 24 hours for the middle-aged adult to 36 or 48 hours for the elderly persons (Davis 1974), and even longer if glomerular filtration rate is seriously impaired. Toxic levels for aged individuals may be reached quickly, thus low dose levels (600 to 900 mg per day for the acutely manic patient) and careful monitoring of serum levels of 1.0 to 1.5 mEq per liter must be achieved in order to give manic patients a fair therapeutic trial on this medication.

The most common hazard in administering lithium to the elderly patient is the effect of body sodium depletion on lithium metabolism. Many elderly patients are on sodium restricted diets, and as body sodium is depleted, the kidney avidly retains lithium, rapidly leading to excessive serum lithium concentrations. Aldactone does not cause lithium retention and is probably the best diuretic to use with lithium. Lithium directly suppresses thyroid function and can produce hypothyroidism, the latter often mimicking depression or dementia in the elderly patient (Eisdorfer and Raskind 1975).

Antianxiety Drugs and Hypnotics

Although barbiturates and nonbarbiturate hypnotics are generally prescribed for sleep, and the antianxiety agents (benzodiazepines and alcohol-glycols) for the relief of daytime anxiety and agitation, they are often prescribed for overlapping effects and hence will be discussed together.

Although the barbiturates were without serious competition as hypnotic and sedative agents for many years, reports of excessive sedation, motor incoordination, and paradoxic excitement in elderly patients have appeared. In a widely quoted article, Dawson-Butterworth (1970) stated that barbiturates were "absolutely contraindicated in the geriatric population."

Despite similarities between the side effects of benzodiazepines and barbiturates in the elderly, the former class of drugs has several practical and theoretical advantages. The low incidence of drug dependence with benzodiazepines, and the diminished probability that an overdose will prove fatal are significant advantages. Of importance for elderly patients, who often receive multiple drugs, is the absence of documented significant effects upon hepatic microsomal enzyme systems, thus sparing metabolism of other drugs, such as tricyclic antidepressants and oral anticoagulants.

We should mention the most commonly used drug in this class, ethanol. This drug, in the form of moderate doses of beer and wine, appears to reduce disturbing behavior and to increase social interaction in institutional settings (Chien 1971). It is also a socially acceptable reinforcer in behavioral approaches to the treatment of behavioral disorders in the elderly (Mishara and Kastenbaum 1974) and in changing role relationships in an inpatient setting.

Cognitive Acting Drugs

Intellectual impairment has always been regarded as an inevitable concomitant of normal aging. Recent longitudinal studies (Eisdorfer and Wilkie 1973, Baltes and Labouvie 1973) suggest that such decline is not as predictable as was thought and, for certain abilities, may not occur at all until shortly before death (Jarvik and Cohen 1973).

Memory loss and intellectual impairment are, however, among the hallmarks of senile brain syndrome, and perhaps for this reason cognitive acting drugs are often referred to as geriatric drugs. The search for an agent that may reverse or retard intellectual impairment and behavioral regression is intense, and a wide range of medications have been investigated for properties as geriatric drugs.

Stimulants and Analeptics

The amphetamines methylphenidate, deanol, pipradrol, pentylenetetrazol, and magnesium pemoline have been reported to increase activity level, alertness and attention to stimuli, to improve recall and recognition, to counteract lethargy, and to stimulate circulation and respiration. However, promising early positive findings have not been supported by later controlled research (Gilbert et al 1973).

Vasodilators

These medications (nicotinyl alcohol, papaverine, cyclandelate, isoxsuprine, hexobenidine) relax the smooth muscle of blood vessel walls in the peripheral circulation and possibly in the cerebral vessels. Hypothetically, this effect would be to decrease ischemic changes in brain tissue by increasing blood flow and by increasing oxygenation of brain tissue. This presumed effect has not yet been convincingly demonstrated.

Terry and Wisniewski (1972), among others, have proposed that senile dementia is not different from Alzheimer's disease of later onset, and that neither disease is primarily of vascular origin. British data report that less than 50 percent of dementias are vascular in origin (Kay 1975). Thus, the efficacy of vasodilator treatment for chronic organic brain syndrome in the aged rests upon questionable, albeit logical, clinical grounds.

Papaverine, an alkaloid derivative of opium with vasodilator properties, has produced general improvement in behavior in association with increased cerebral blood flow and decreased arterial resistance. However, significant intellectual improvement has not been consistently demonstrated (Lu et al 1971).

Cyclandelate is similar in its action to papaverine. In both uncontrolled and controlled studies (Ball and Taylor 1967), positive findings have been reported including one (Smith et al 1968) in which patients improved on long-term memory, verbal expansiveness, reasoning, and orientation. The group consisted in the main of mildly impaired patients.

Hydergine

This drug, consisting of three hydrogenated alkaloids of ergot, has been reported to increase cerebral blood flow and oxygen uptake by direct action on ganglion cell metabolism, without producing hypotension (Emmengger and Meier-Ruge 1968). The majority of controlled studies against placebo have been positive (Roubicek et al 1972). Improvement has been noted in attitude, activities of daily living, and somatic complaints,

Continued on page 557

Continued from page 415

This is the best current manual on the care of ocular injury. Its value to the family physician is diminished, however, by its all-inclusive coverage. Primary, secondary, and tertiary care are covered equally and therefore somewhat superficially. The audience best served would appear to be residents in ophthalmology and those physicians desiring quick information on current practice in this field.

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Care for the Injured Child. *Surgical Staff, The Hospital for Sick Children, Toronto, Canada. Williams & Wilkins Company, Baltimore, 1975, 444 pp., $28.00.*

Care for the Injured Child is an in-depth text primarily considering serious injuries. It reads easily because of the anecdotal style, but it is written in great detail. It is, thus, most appropriate as a reference for surgeons and Emergency Room physicians.

For those using it as a reference, there are good tables and sketches, such as those dealing with bicarbonate dosage in shock and placement of chest tubes. The index is woefully inadequate (bicarbonate, for example, is not indexed), so one would have to have read and made one's own notes on the location of the items expected to be of use. The family practice resident will find it of use while on Emergency Room rotation.

The practicing family physician and general pediatrician will find little of everyday use in this text, as it deals only lightly with minor problems, and when it does, it fails to utilize the triage concepts necessary to primary practice. Chapters most appropriate to the family physician are those dealing with suturing, shock, head injury, and perineal injuries. The chapter on head injury gives a particularly good discussion of early diagnosis and observation.

To the extent to which they are useful in family medicine, the little hints from the personal experiences of the contributors are another strength of this book.

Overall, it is probably not a book for the personal library of the family physician, but would be a useful reference in the Emergency Room, or whenever family physicians take call or family practice residents take training.

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The Challenges of Community Medicine. *Robert L. Kane (ed). Springer Publishing Company, New York, 1974, 369 pp., $15.00.*

In Dr. Kane's own words:

> The purpose of this book is to orient students of medicine and other health professions to the wider perspective of the community ... The intent is to broaden students' horizons ... One of the constant themes in this book is the multidisciplinary nature of community medicine.

Fifteen contributors assist Dr. Kane in this formidable task. The authors come from a variety of backgrounds including economics, social work, epidemiology, and occupational medicine and, thus, use a variety of styles and terms from their special fields. Despite a useful six-page glossary, it will take an above-average student to feel comfortable in each of the four sections of the book: Part I – The Tools of Community Medicine; Part II – Medical Care Organization; Part III – Evaluation of Health Care; and Part IV – Environmental and Social Factors.

Nevertheless, the authors convey a spirit of challenge, energy, and enthusiasm which should arouse and inspire rather than comfort the health science student. A few chapters are too brief to do more than introduce the content area, but the references are quite adequate.

Continued on page 556

Continued from page 552

The chapter on general epidemiology, by Thomas M. Mack, is thorough and concentrated, though probably too dense for the average introductory text, but I may be underestimating the talents of the contemporary generation.

Chapter 6 by Dr. Kane on "Disease Control: What is Really Preventable?" is an example of a more fluent chapter with well-developed examples and a very readable annotated bibliography which should have great appeal for student and teacher alike.

Dr. Kane and his colleagues deserve much credit for a book which should receive wide acceptance by health science workers who need to explore the multidisciplinary approach to community health problems in greater depth than most introductory textbooks provide.

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The Care of Patients: Concepts and Tactics. *Mack Lipkin. Oxford University Press, New York, 1974, 288 pp., $8.95 (cloth), $4.95 (paper).*

The author's easy utilization of anecdote, as well as delightful and purposeful usage of quotations from the "history of medicine" bring together what would appear to be the best from many years of his own experience as a humorist and of the thoughts of learned men of yestercentury. With the greatest respect for the medical profession, he is critical in a nonjudgmental manner of the "science of medicine" as it excludes the "art." He feels that there is nothing wrong with being concerned with the "art of medicine" so long out of vogue in the centers of higher learning.

Lipkin ranges widely in his book, from a brief description of the evolution and nature of the healing arts and sciences, to the etiologies whereby people fall ill, the diagnosis and assessment of the patient and his problems, and the treatment and management of illness.

In the light of today's complaint by the lay and professional press of the dehumanization of medicine and the medicine man, this book is certainly a welcome relief. It is a must for all concerned teachers of the "personal physician," an excellent reference guide for the would-be "role model" family physician, a textbook for the intended authors of the professional and lay press, and will be part of my own personal library. It will probably become required reading among the family practice residents and medical students of our program and will be recommended for my fellow teachers and friends.

Overall, it is a delightful book.

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Operative Obstetrics (3rd Edition). *Edited by R. Gordon Douglas and William B. Stromme. Appleton-Century-Crofts, New York, 1976, 986 pp., $45.00.*

This impressive reference book should be in the library of every family physician who includes obstetrics in his practice. The traditional layout and systematic approach provides an easy reference system for the busy practitioner who requires authoritative guidance on diagnostic and therapeutic techniques across the whole span of modern obstetrics.

Profusely illustrated and backed by a wealth of statistical data, every eventuality is covered, and if there are any omissions, they would probably not be worth including. As a former obstetric resident I would have been glad to have had such a friend to guide me in the dark and lonely hours when so many obstetric mishaps seem to happen.

One can recommend this splendid

Continued on page 568

Continued from page 551

but not quantitatively in cognitive functions. In Roubicek's study (1972), improvement was most marked for symptoms associated with depression (emotional withdrawal, depressive mood, motor retardation, blunted affect, activity, wakefulness), whereas cognitive functions were not demonstraby improved. Perhaps the efficacy of hydergine is a result of antidepressant activity. Pacha and Salzman (1970) found hydergine to inhibit reuptake of norepinephrine in vitro, a property compatible with antidepressant effects.

Anticoagulants

Walsh and Walsh (1972), using bishydroxycoumarin in uncontrolled studies, claimed remarkable improvements in intellectual function. The action is presumed to be due to decreased sludging of blood. More controlled studies, however, have been less encouraging. Lukas et at (1973) compared an oral anticoagulant to papaverine over a four-month period in small groups of patients with organic brain syndrome. No significant differences were found between the two groups and both groups showed significant deterioration in the Graham-Kendall test of organic abnormalities. In a year-long, double-blind study, Ratner et al (1972) found no difference in 24 of 25 variables reflecting cognitive functions and mental changes. However, the anticoagulant groups showed a trend toward less deterioration than the control group. The potential hazards of anticoagulation in aged subjects appear to be a legitimate deterrent to the use of this approach.

RNA-like compounds

RNA and DNA have been administered to patients, with conflicting reports of significantly positive intellectual changes (Cameron et al 1963, Kral et al 1967).

Procaine and Gerovital

For years, a buffered form of procaine, developed in Romania, has been promoted enthusiastically as an antiaging medication. It is usually given intramuscularly three times a week for 12 weeks. Many uncontrolled studies have found it effective in the treatment of a broad spectrum of physical and mental disorders associated with aging. Procaine was studied intensively in England, Canada, and in the United States by controlled studies, which were mostly negative (Kral et al 1962), with some exceptions. For a time, Gerovital (European procaine) was discredited. Recently, however, interest has been revived after it was found to be a reversible inhibitor of monoamine oxidase (MacFarlane and Besbris 1974) in the rat liver and thought to be more stable in solution than procaine. Sakalis et at (1974) found Gerovital (H_3) to have a mild euphoriant effect in ten senile-arteriosclerotic patients with features of depression, which suggests a possible antidepressant effect for the drug. In view of the data reported by Nies et al (1973), indicating increased levels of monoamine oxidase in the aging central nervous system, the potential effectiveness of a mild reversible monoamine oxidase-inhibitor holds some promise.

Hyperbaric Oxygenation

Following remarkably positive findings by Jacobs and her associates (1969) of the effectiveness of pure oxygen administered under high pressure (100 percent at 2.5 atmospheres absolute for 3 hours a day for 15 days) in improving memory and other cognitive functions, other investigators undertook to replicate their findings. Neither Goldfarb and his associates (1972) nor Thompson and collaborators (Thompson, personal communication) have been able to confirm their findings.

Vitamins

Lehmann and Ban (1969) suggest from clinical experience that the B vitamins and vitamin C are helpful in demented patients and are nontoxic. Altman et al (1973) found administration of a vitamin B complex-vitamin C combination strikingly effective in the reduction of excitement and agitation in patients with organic brain syndrome. They hypothesized that institutionalized elderly may be deficient in vitamin C. Cognitive function per se was not tested. This interesting finding deserves further study. The therapeutic use of vitamins, where medically indicated, particularly among the elderly with poor nutritional habits, should not be overlooked.

Gonadal Hormones

These have also been suggested as therapeutic for elderly patients with cognitive deterioration. Michael (1970) administered conjugated equine estrogen to a group of elderly women in a nursing home in a 38-month placebo-controlled trial. The estrogen group showed significant behavioral improvement compared to placebo, but drop-out rate was very high. Lifshitz and Kline (1961) compared estrogen to placebo for 15 months in a large group of chronically demented men. Disappointingly, the only significant difference between groups was a higher mortality in the estrogen-treated group. Further work in the area, however, may prove profitable.

Beta-Adrenergic Blockage

Eisdorfer, Nowlin, and Wilkie (1970) had administered propranolol, a beta-adrenergic blocking agent, to aged nonpatient volunteers and found that performance on serial rote learning improved, while the level of free fatty acids decreased. This suggests a facilitory effect on cognitive function of decreased autonomic nervous system arousal.

Conclusion

Psychopharmacologic treatment should be a part of a comprehensive treatment program, which includes other modalities of treatment of potentially debilitating physical disorders.

The therapeutic nihilism associated with the aged psychiatric patients is unwarranted. A broad array of individual and group therapies, learning strategies, and environmental manipulations, as well as pharmacotherapies, are effective with this population. In some settings, psychotropic medications may be used unwisely, especially in attempts to control recalcitrant individuals with excessive sedation. Such abuses are more likely to occur in the "hopeless and helpless" atmosphere of custodial rather than therapeutically oriented environments.

Psychopharmacologic agents alone, or in conjunction with other forms of treatment, can, in many instances, produce gratifying therapeutic success among the aged. Results will be far more satisfactory, however, when

Continued on page 558

Continued from page 557

more is known about the psychologic, social, and physiologic bases for age-related changes, and when the avenues of intervention are defined with greater clarity.

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