

Evaluation of the Hyperactive Child

C. Timothy Lambert, MD, Alice A. O'Donell, MD, and Bill S. Caldwell, Jr., PhD
Galveston, Texas

DR. C. TIMOTHY LAMBERT
(*third-year family medicine resident*):
Our discussion today concerns the hyperactive child, with some overlap into the larger topic of minimal brain dysfunction. We are fortunate today to have as our discussants Dr. Bill S. Caldwell, Jr., from the Department of Pediatrics, Division of Child Development, and Dr. Alice Anne O'Donell from the Department of Family Medicine.

We are dealing with a large and complex topic — 40 or more terms are used for it in the professional literature. Some of the more common terms are the brain-injured child, the hyperactive child, minimal brain injury, the brain-damaged child, the dysfunctional child, developmental imbalance, maturational lag, central nervous system dysfunction, and the child with cognitive defects and neurophysiologic immaturity. This list illustrates how complex and nebulous the subject actually is. It has been selected because it is a problem that presents itself in many forms to a practicing family physician.

There are varied definitions that doctors and educators alike have used to define the complex and confusing syndrome that we have before us. The United States Department of Health, Education, and Welfare, following a study conducted in the 60s, defined minimal brain dysfunction as "certain learning or behavioral disabilities ranging from mild to severe associated with functional deviations of the central nervous system observed in children of near-average or above-average intelligence."¹ O'Malley and Eisenberg have described the hyperactive child as "a symptom constellation of motor restlessness, impulsiveness, short attention span, learning difficulties, and emotional lability . . . often seen in conjunction with other psychiatric or neurological entities in children."²

There are many estimates of incidence of this problem; the majority of the figures quoted in the United States cite between four and ten percent of school-age children as affected. These cases are most often firstborn children and the majority are male.

There are probably multiple etiologic factors involved. Contributing factors may be present prior to gestation such as familial or genetic predispositions, as well as the nutritional status of the mother. Prenatal contributing factors include the TORCH Syndrome infections (toxoplasmosis, rubella, cytomegalic inclusion disease, and herpes infections), malnutrition,

toxemia, and hemorrhage. Perinatal problems including cerebral hypoxia, cerebral hemorrhage, low birth weight, hypoglycemia, hypocalcemia, and hyperbilirubinemia can all play an important role in the development of the syndrome. Postnatal problems may include trauma, encephalitis, meningitis, hypernatremic dehydration, toxic encephalopathies, inborn errors of metabolism, and tumors. In addition to these organic causes, emotional disturbances can play a major role. These include not only interpersonal relationships, but also parent-child relationships, and appear to be very important in the development of the syndrome.

The basis for the problem is the child's inability to limit his motor activity, to differentiate between relevant and irrelevant stimuli, and to focus his attention. The hyperactive child asked to perform in class may be distracted by traffic in the street, something going by the window, motions in the class, a fly on the wall, activity at the teacher's desk, or any number of things that would not distract another student of the same age and mental abilities.

These children are frequently described as having a maturational lag and as developing more slowly than their peers; however, in time they are going to catch up. Unfortunately, by the time they catch up damage may have already occurred. Essential educa-

From the Department of Family Medicine, The University of Texas Medical Branch at Galveston, Galveston, Texas. Requests for reprints should be addressed to Dr. A. A. O'Donell, The University of Texas Medical Branch, Department of Family Medicine, 415 Texas Avenue, Galveston, Texas 77550.

tional processes have been missed or have not been grasped. The child's self-image has been damaged as a result of repeated class failure or he has been placed in the special education class. At this time his future seems sealed, but if we as physicians could work more closely with the schools, possibly we could prevent some of these problems.

Dr. Leon Eisenberg, Psychiatrist-in-Chief at Massachusetts General Hospital, has this to say about the hyperactive child, "Once seen, it is clear to any observer. It is the kind of behavior that causes the pediatrician to put out oaths of exasperation after a youngster has dismantled his waiting room. It is a youngster like a whirling dervish who cannot sit still for a moment, who is constantly into things, fiddles, twitches, pulls on things, cannot keep his hands to himself. Interestingly enough though, every effort that has been made to measure this objectively with a pedometer shows little that differentiates this child from the normal, and I suppose the reason for that is that normal children are very active. If you look at a playground during recess at school you see, I think, the best example of Brownian movement in a macroscopic world, little atoms that bounce into one another and bounce off and keep on moving. So that a normal child could be hyperactive at certain periods of the day. The big difference is that the hyperactive child does not lose his overactivity at a time when a normal child is able to control his own level of activity. So I think the best definition is random and purposeless movement. The big difference between the normal and the overactive child at each age period is the difference between goal-directed activity and random purposeless movement. Now, of course, the other side of it is there is a big age factor in activity level. The activity level which is normal for a three-year-old or a four-year-old is abnormal when it persists into seven or eight years of age. The activity level is another measure of the concentration span of the child. As he gets older, the child can attempt to sustain activity for longer and longer periods, whereas a hyperactive child cannot. He behaves like a child much younger than himself in chronological age."³ So, in a nutshell, I think that is a definition and a background as to what the problem is

with a hyperactive child.

Psychosocial adjustment is perhaps one of the most important problem areas in hyperactive children: the child's ability to concentrate, the ability to make social judgments, the frequency of temper tantrums, the child's emotional inlay, and particularly the parent-child relationship; whether or not the child has been disciplined, whether the child takes to discipline, and what actually goes on. At this point, Dr. O'Donell, I wish you would comment on the importance of the history of the parent-child relationship.

DR. ALICE A. O'DONELL (*Assistant Professor, Departments of Family Medicine and Pediatrics*): The common denominator in any work-up is to deal not only with the issues that Dr. Lambert has raised, but also to try to find out about the parent-child relationship by talking with the parent and the child together as well as individually. It is important to find out what it is like at home, as well as identify the problems that concern the parents. Many times you think that they are coming because the child is having trouble in school. They are really seeking help for such things as discipline during mealtime, or their child will not pick up his clothes, or make up his bed, or assume responsibility as a member of the family unit. So when you really ask the mother what is troubling her, these are the things that come out. This is not to say they are not concerned about the school problem, but that problems exist in the home as well.

The majority of the subjective information can be collected beforehand with questionnaires, checklists, and information from the school. This will allow you to spend more time trying to discover what is going on between the parent and the child. You are trying to find out if there is any consistency in this household, consistency in almost any way that you can think of. Are the parents consistent in the discipline? Is there any consistency in their schedules? Their daily routine? When you begin talking with the families of hyperactive children, you find out that there is havoc at home. I do not mean to imply that I think that that is always the cause of the child's hyperactivity, but I do think that it is going to be one of the things that you will have to deal with almost initially.

Dr. Caldwell might have some comments.

DR. BILL S. CALDWELL, JR. (*Associate Professor, Department of Pediatrics and Co-Director, Division of Child Development*): In using this word "hyperactivity," it is very important to find out who has called the child hyperactive. We receive many referrals from physicians who say, "Please evaluate this child, who appears to be a hyperactive." Then we will contact that physician and ask him the basis of this statement. He will say, "Well, I am just repeating what the parents told me. I have only seen this child a couple of times. He is not hyperactive around me, but they say he is at school." So you trace this down, and perhaps one teacher had been reading about hyperactivity or had seen something on television, picked up the term, told the parents, the parents called and told the physician, and the physician refers. So I think it is important to find out who first used the term "hyperactivity" and what they mean by it.

We ask them, and if they say, "Well, he is just all over the room," that is not good enough. "What do you mean, all over the room?" They say, "Well, he is into everything." You say, "Well, I do not understand. I am a little dense. What do you mean, he is into everything? What does that mean to you?" They say, "Well, he just will not eat properly at the table." The mother says this to you, and you say, "What do you mean by properly?" Then she says, "Well, any child four years old should be able to use his fork properly." (This is a six or seven-year-old task.) You have to find out first if they are using hyperactive the way you would use it.

DR. O'DONELL: A word of caution at this point: remember to establish a minimum data base on every child who presents with "hyperactivity" as a problem. (See Figure 1.) It is sometimes easy to make a diagnosis of a behavior or discipline problem after observing the mother-child interaction in the office setting; however, the child may have an abnormal physical or neurologic examination as well.

STUDENT: Do you consider as a part of your history a talk with the teacher? Do you actually speak with the teacher or is a written report sufficient?

DR. O'DONELL: In general, I find a written report from the teacher very helpful and essential if the child has failed in school. If I know in advance that the parents are concerned about hyperactivity or learning problems in a school-age child, I request that information from the school be obtained before the office visit.*

DR. CALDWELL: That is good. We will not see a patient until we have school information; we see no reason to do so. We do not know what is happening, so we always get a school form filled out. We like to see both parents, incidentally, as Dr. O'Donell pointed out the importance of family conflicts. I think it is important to see the father and to say something like, "Sometimes fathers look at things differently from mothers. How does all this appear to you?" He tells us then.

For many years we have had a rule of thumb that works out well, even though it is not 100 percent accurate. We look for (1) an organic etiology, (2) the so-called soft signs on neurological examination, and (3) the psychological test data. We like to have two positive findings in areas indicating minimal brain dysfunction before we make that diagnosis. On the neurological examination, you may have the soft signs indicating that this might be Minimal Brain Dysfunction, or whichever term you use; however, when the etiology and the psychological results do not indicate this, then we would question the diagnosis and start looking for some other cause for the clinical information we are getting. When two out of three of the indicators point in the same direction, it gives credence to the diagnosis.

DR. LAMBERT: On the two patients with whom I have been involved with Dr. O'Donell, we had school evaluation forms completed prior to our initial assessment. I found them to be extremely helpful.

When you are ready to get your objective data, it is very important to do a complete physical examination, including a neurological examination, looking for soft signs. There are several diseases that cause some degree of incoordination and must be ruled out. (See Figure 1.) Oftentimes if a child

does not hear well, he may be a terror at home because he is not understanding or responding to verbal input. The same is true for poor vision. It is a problem that should not be missed, but if you do not check for it, you are not going to pick it up. Next we come to the neurological exam. Important things to look for are the head circumference and whether or not it is within the normal range, the cranial nerves, reflexes (frequently they can be hyperactive), muscle strength, sensory testing, and then some of the checks for soft neurological signs. There are many tests, some of which are listed in the protocol: finger-nose-finger test, finger-thumb test, and simultaneous-touch test (where you are standing behind a child, his eyes are closed, and you are touching him in alternating places of both sides of the face, face and arm, face and alternating sides). A normal child by age five or six should be able to do very well on this test. The two-point test is where you have him close his eyes and you touch him with two fingers on one hand and you can either touch him on one finger at two points of one finger, or two fingers and then ask him how many fingers you have touched. By age five they should get 50 percent of these correct, and by age seven and one-half they should not miss on this particular test. They should be able to coordinate facial apraxia, where you ask the child to blow out alternating cheeks. They should be able to do stereognosis (handing them an object while their eyes are closed and asking them to describe the object). Dr. O'Donell, do you have anything to add to the neurological testing and the check for soft neurological signs that I have not covered?

DR. O'DONELL: Many of your suggested references have information regarding norms or scales related to age; however, this cannot replace experience gained in the neurologic examination of normal children. I suggest that on all well-child assessments you see during your residency, you do finger-nose-finger, finger-thumb, rapid alternating movements, and some measure of gait such as tandem-walking and the Romberg's sign. This will give you some idea of "normalcy." A word of caution on the importance placed on "soft signs." There should be evidence of neurological difficulty in more than one test.

Just because a seven-year-old cannot tandem-walk does not mean that he is "brain-damaged."

DR. CALDWELL: Unfortunately, there is no adequate scale on the neurological examination. For years we have carried out small-scale studies trying to standardize the neurological examination for children with mental dysfunction. The difficulty is agreeing on (1) what you are testing, and (2) how you are going to test it. Take such an example as the finger-thumb test. What sort of scale are you going to use for that? Are you going to time it? Are you going to count the number of times the child can touch his thumb? Are you going to evaluate the sequence, the pressure he applies, the angle of his fingers, and so on? It is an exceedingly complicated business trying to scale this, so that one must rely on experience with these tests. I would caution you, however, not to have your normal limits so wide that you accept everything as normal, which can easily happen.

STUDENT: What is the minimum amount you do on every child that you examine, and would you vary it with the age of the child?

DR. O'DONELL: The minimum amount that I would do would be finger-thumb and finger-nose with the child's eyes closed, rapid alternating movements, and some evidence of gross coordination like tandem-walk, hop, skip, and "on your toes." That does not take very long, and it allows you to get a feeling for the child. They are often scared to death about being there. They do not really know why they are being seen by the doctor. The mother is concerned and/or scared. Most of the time you can detect this as you walk into the room. Perhaps if they were going to the family physician, this would not be the case; they would have already established rapport, but the majority of the patients I see are not people who I have been following. The neurological examination is really a fine way to establish rapport with children. It is fun, you can reinforce them, but that, too, has danger in trying to standardize the neurological test. I do encourage them by saying how well they did. There are some other tests such as Bender-Gestalt and Draw-a-person that I would like for them to do later, and if they get the idea that they are not doing well, they may totally give up.

*A sample school evaluation form may be obtained from Dr. A. A. O'Donell, The University of Texas Medical Branch, Galveston, Texas.

Figure 1. Protocol: Hyperactivity

Subjective: History is the cornerstone to diagnosis and must be taken carefully and accurately.

- A. **Family History**
 Parents' ages (mothers are frequently younger than 16 or older than 35 at conception)
 Sibs (frequently occurs in firstborn males)
 Similar history in relatives (there are familial and genetic tendencies in some)
- B. **Gestational History**
 Maternal diseases (diabetes, TORCH infections, past history of abortions or stillbirths, maternal medications, toxemia)
- C. **Perinatal History**
 Gestational age
 Intrauterine activity
 Type and ease of labor and delivery
 Apgar score at birth
- D. **Postnatal History**
 Neonatal course (are frequently observed to have increased or decreased motor activity)
 Respiratory problems (anoxia)
 Hypoglycemia
 Hypocalcemia
 Hyperbilirubinemia
- E. **Developmental History**
 Maturational milestones (frequently delayed and uneven)
- F. **Psychosocial Adjustment**
 Ability to concentrate
 Social judgment
 Temper tantrums
- G. **Educational History** — this is extremely important. Often the teacher is the referral source because of classroom behavior and learning disabilities.
- H. **Recreational Adjustment** — overactivity will many times frighten peers away and affected children may become self-conscious about their inadequacies.
- I. **Frequently used descriptive terms**

<i>Motor</i>	<i>Behavior</i>
overactive	disruptive
fidgety	antisocial
can't sit still	impulsive
constantly moving	destructive
clumsy	bothers others
driven	pest
whirling dervish	tantrums
climbing and jumping	aggressive
	cruel
	hostile
	short attention span
	distractible
	low frustration tolerance

Objective:

- A. A complete *physical exam* is important to rule out possible congenital lesions (von Recklinghausen's disease, tuberous sclerosis, Sturge-Weber syndrome) as well as orthopedic malformations secondary to poor muscle tone and use. The physical exam is usually normal. Vision and hearing should always be checked.
- B. **Neurological exam** should include: Head circumference, cranial nerve exam, reflexes (often hyperactive), muscle strength, sensory testing, and the following checks for "soft" neurological signs: (1) finger-nose-finger, (2) finger-thumb, (3) rapid alternating movements, (4) simultaneous touch (done well by age 5-6), (5) two-point test (50% correct by age 5, 100% by age 7.5), (6) facial apraxia (100% by age 9), (7) letter tracing on the back, and (8) stereognosis tests. Problems frequently seen in the neurological realm include: speech abnormalities, strabismus, nystagmus, convergence difficulties, tremor, mild choreoathetosis, clumsy and broad-based gait, truncal swaying, poor tandem-walking, inability to hop or stand on one leg, poor finger-nose-finger, dysdiadochokinesia, synkinesis, increased DTR's, clonus, variable Babinski's.
- C. **Laboratory Evaluation**
 EEGs are nonspecific
 Appropriate tests for inborn errors of metabolism when indicated
 Skull x-rays on occasion
 Stools for pinworms

Another point of caution: many of the children, particularly the ones you are going to see in the six to nine age group, may be very shy, and their failure at some of the tasks is not failure in skill, but is because they are so shy they refuse to perform. They will just say, "I cannot do it" without trying. When you have this kind of child, just leave the item as unassessed and try to accomplish it at a later time. Do not say it is that he *cannot* do it.

DR. CALDWELL: I am glad you mentioned this. Something to keep in mind on both neurological tests and psychological tests is to get away from the phrases "he cannot" or "he will not." You do not know that. All you can say is "he did not." You can get into trouble with both of these if you put into the chart that you know that this child "could not." You have made a judgment of his ability, and you really do not know until he has tried it.

One other thing I would like to mention is that balance is one of your good clinical indicators. Hyperactive children have extreme difficulty balancing. What you want them to do is to balance with their eyes open and then with eyes closed. I think it is important, as Dr. O'Donnell mentioned, that you use some of these tests frequently until they become familiar to you.

One test that is often useful is to ask the child to bring the arm up, outreached, with fingers spread apart. From some hyperactive children you will get almost athetoid movements. Some find it extremely difficult to do. This would be particularly true if the etiology is organic.

DR. O'DONNELL: We recently saw a 15-year-old with hyperthyroidism. I am sure that early in his disease his "nervousness" could have been confused with hyperactivity. It can be very difficult to separate hyperthyroidism from this hyperactivity syndrome we are discussing, but it must be considered as a treatable medical diagnosis.

DR. LAMBERT: As far as laboratory evaluation of the problem goes, it is hard to pinpoint any laboratory test that absolutely must be done. Electroencephalographic findings are non-specific. There is a greater incidence of abnormal findings than in the normal population, but they are not diagnostic and do not really help. I do not

Figure 1. Continued

D. *Psychological Testing*

Bender-Gestalt
Denver Development Screening Test
Peabody Picture Vocabulary
Vineland Social Maturity
Draw-a-person

Assessment:

The diagnosis should include whether the child fits the definition of the syndrome and whether the major pathology appears to be organic, emotional, or mixed.

Plan:

A. *Parental Counseling*

Parents need frequent and regular visits for the purpose of support, an outlet for frustrations and fears, and information about progress with this problem. Help and information is available from the Association for Children with Learning Disabilities (ACLD).

B. *Pharmacotherapy* — a useful adjunct but certainly not the primary or only useful therapy.

Methylphenidate (Ritalin) — probably the drug of choice to start therapy when indicated.

Dosage begins at 5 mg b.i.d. and is increased by 5 mg per week until dosage or maximal results are achieved.

Major adverse effects are insomnia and anorexia. These usually regress after several weeks on therapy.

C. *Education*

Decreasing external stimuli

The major benefit for these children is achieved when the physician and school work closely together in a unified effort to control the symptoms and educate the child.

D. *Psychotherapy*

This is occasionally necessary when the etiology is primarily emotional or when problems arise from a distorted self-image.

done by us without any extra help. The tests are the Bender-Gestalt, the Denver Developmental Screening Test, the Peabody Picture Vocabulary, the Vineland Social Maturity Scale, and the Draw-a-person. Dr. Caldwell, I wish that you would expound on these psychological tests as well as when we should refer the child to you.

DR. CALDWELL: Let me first complicate this question. One of the difficulties of talking about hyperactivity is that this is sometimes used synonymously with learning disability. The two words are not synonymous at all. A child can be hyperactive and not have a learning disability. The reverse can be true. Over the years we have gotten ourselves in a bind with the educational systems of the state. We have what are called MBI classes, "minimal brain injury" classes. That term is synonymous with the definition here of MBD. It is not synonymous with learning disabilities, because we also have classes for learning-disabled children. To make the diagnosis of MBI in this state, a physician has to certify that he has examined the child and has demonstrable evidence of minimal brain injury. To certify that a child is LLD, you must have other kinds of evidence based on psychological tests. The best summation of this subject is provided by John Money in his book *The Disabled Reader*.⁴

In terms of psychological testing, I concur with Dr. Lambert that simple tests can be used which will give you very useful information. A few things that we might point out that will assist you in your diagnosis are: great variability indicates that you are probably dealing with the MBI child or the specific learning disability, whereas an even profile probably indicates a normal child or one who may simply have lowered ability. After all, let's admit that we are not all of equal intelligence. A child is referred to you, and the mother and the teacher say that he just cannot seem to learn. You find out that indeed he cannot learn in any area very well. He is just a little bit slow. That child may be neither hyperactive nor learning disabled. So your test results obtained from the Denver, or from the Peabody, or from the Vineland, which is filled out by the mother, will give you a profile of that child. If all of this indicates about the same level of performance, it tells

think they are worth getting unless you have specific indications either from your history or physical findings. Screen for inborn errors of metabolism, if you think there is a possibility; skull x-rays, with specific indications; stool for pinworms if the history or the physical exam leads you to feel that this is a possibility.

DR. O'DONELL: There was a great deal of emphasis in the past placed on skull x-rays and EEGs. I think this originated in medical centers where they were doing research to determine if unrecognized infections such as cytomegalic inclusion disease and toxoplasmosis were associated in the etiology of MBD.

Occasionally, schools and parents request the physician to obtain skull films and EEGs.

DR. CALDWELL: I have been to professional meetings where there were presentations by people who were diagnosing disease with EEGs. That is why the schools come back and ask for this so much.

DR. O'DONELL: You have to remember that many of the things we

do in medicine are like a pendulum and swing one way or the other. Now many of us would like to get away from the routine use of the EEG and order it only when indicated.

DR. LAMBERT: A possible indicator could be a history of seizures, or activity that could be seizures.

DR. CALDWELL: There is a phrase here, though, that sometimes will give you a clue, and that is "a short attention span." Here again, people do not always agree on what a short attention span is. Sometimes a teacher will tell you, "This child has a short attention span." You say, "What do you mean?" The teacher will say, "We will be reading and the first thing I know, he will be staring out of the window." You think that perhaps he is just distractible. What you really find out is that he is having short staring spells.

DR. LAMBERT: Psychological testing is an important part of the work-up of the hyperactive child. Five tests are included in our protocol (Figure 1) which are available in the clinic, are simple to do, and can be

you a great deal.

You can also use information from the school. You do not have to be able to give these tests. If the school has tested the child, get that information before repeating it. Here is a child with a slightly low IQ who is having a little bit of difficulty with reading. The teacher says he is just a little bit clumsy, not much. You do a neurological examination and you do not pick up anything. He is at the lower limits of normal. So you have a child who functions at the lower limits of normality in many areas, and he might not be hyperactive at all. So the psychological test then should give you some information about his ability. You can get achievement scores and grades from the schools. Then you should get some information about visual perceptual motor skills. That is what the Bender-Gestalt does. You can translate what he sees.

It would be desirable then to test whether or not he could take auditory input and translate that into some behavior. This might be a simple thing like giving him instructions to see if he can remember them.

Then I do what we call situational testing. You do a lot of observing of this child. Frequently after you have tested the child and not found too much wrong with him, the mother may say, "But you have him in a different situation," in a one-to-one situation. Teachers will say that in school he is quite different. Then I have to ask them what makes the difference? It does not always lie within the child; it may be in the environment within the school. And this is what we were getting into earlier when we said you have to look at everything.

So again, we get back to the same problem. You have to look at that child very carefully; think then, what are the expectations imposed upon him, and what are people doing to get him to meet those expectations? The psychological test will give you some objective data in terms of ability level, in terms of visual motor coordination, in terms of how well he can integrate information, and on each of these tests there are certain things that you might look for. For example, the Peabody Picture Vocabulary test (where you ask the child to point to a picture) is a test of one type of thinking only. It is not an intelligence test; it is a picture

vocabulary test. You get an IQ, and they call that a child's intelligence. That is not his intelligence at all. It is his ability to do one thing; point to a picture when you call a word. There is the possibility this child has a great deficit, but only within that one area, and can handle other types of thinking processes quite well: number concepts, reasoning, abstract thinking, etc. You have to be very careful about using any one test and saying the child has a low IQ. It may not explain anything. That is the reason you have to get data from different sources. I do not think you can get too much.

DR. O'DONELL: There are a great number of children we see on an ongoing basis who are at risk and whom we should be looking at more closely. You need to identify in your practice that this baby was a product of a complicated pregnancy, bilirubin was elevated, his development milestones are slow, discipline is inconsistent or lacking, etc. We may prevent the child from becoming a chronic school failure.

DR. CALDWELL: I think that is true. A mother may come in with her child and say, "He is so hyperactive, Doctor, and he has failed the second grade as well." You now vaguely remember that last year she said something about Billy Jo having a little bit of trouble, and you did not pay too much attention to that. You ask her, "You say he is hyperactive. When did this start?" She can remember exactly: it was shortly after his fourth birthday. Now we all know that this is not something that starts suddenly. So there must have been something that took place in that child's life around his fourth birthday that caused him to start acting out. And thereupon we have hyperactivity.

DR. O'DONELL: I think that when you see two-year-olds it is imperative for you to talk with the parents about what this child is like. Is discipline a problem? How are they approaching the child? Do they have any concerns?

DR. CALDWELL: Is he colicky?

DR. O'DONELL: That is right, and the majority of the children in your practice are going to be seen by you at some time before starting school. That is when they have to have well-child examinations or immunization records filled out for either kindergarten or the first grade. They cannot get by you. At that point I think that you just

have to ask the mother how he has been getting along. If he has been in a nursery school, what has that been like; if he has been in kindergarten, did he have any difficulties?

DR. LAMBERT: As you can see, our time is almost over and we have not talked about the management of the hyperactive child. An adequate discussion of the topic demands that we devote an upcoming conference on the medical management of hyperactivity. In the protocol I have listed the areas that are important: parent education, drug therapy, and school programs designed to teach children with learning and language disabilities.

DR. O'DONELL: I would like to stress the importance of frequent follow-up visits for all children who are on drug therapy. I see them initially every month for three months, then extend the interval to two to four months if the child is making satisfactory progress. I also continue to have contact with the school and request yearly evaluations of school performance.

DR. LAMBERT: I would like to thank our discussants for today and hope that my fellow residents and students have acquired a better approach in the evaluation of the hyperactive child.

References

1. Clements S: Minimal Brain Dysfunction in Children. National Institutes of Neurologic Diseases and Blindness. US Department of Health, Education, and Welfare, Public Health Service Bulletin No. 1415, Monograph No. 3, 1966
2. O'Malley JE, Eisenberg L: The hyperkinetic syndrome. *Semin Psychiatry* 5(1):95-103, 1973
3. Eisenberg L, quoted in Denhoff EJ, Millichap JG, Taft L (eds): *The Hyperactive Child*. Summit, New Jersey, Ciba (Medcom), 1971
4. Money JW (ed): *The Disabled Reader; Education of the Dyslexic Child*. Baltimore, Johns Hopkins Press, 1966

Suggested Reading

1. Denhoff EJ, Millichap JG, Taft L (eds): *The Hyperactive Child*. Summit, New Jersey, Ciba (Medcom), 1971
2. MBD Compendium. Summit, New Jersey, Ciba (Medcom), October, 1974
3. O'Malley JE, Eisenberg L: The hyperkinetic syndrome. *Semin Psychiatry* 5(1):95-103, 1973
4. Reece RM: The hyperactive child syndrome. *Am Fam Physician* 8(3):98-103, 1973
5. Schain RJ, Reynard MS: Observations on effects of a central stimulant drug (methylphenidate) in children with hyperactive behavior. *Pediatrics* 55:709-716, 1975

A list of further suggested readings may be obtained by writing to Dr. A. A. O'Donell, The University of Texas Medical Branch, Department of Family Medicine, 415 Texas Avenue, Galveston, Texas 77550.