Round Table Discussion

MANAGEMENT OF THE NEWBORN AND PREMATURE INFANT

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I. Responsibilities of the Hospital

Chairman Clifford: The swing from the home to the hospital as the scene of childbirth is almost complete. In 1948 85% of all births in the United States took place in hospitals. In 13 states 98% of births were in hospitals. This rapid shift created a major problem for our hospitals as they were caught with an increased patient load without a commensurate increase in physical plant and personnel and without time to develop adequate technics of management. The trend toward a shortened period of hospitalization helped in permitting the institutions to care for a greater number of patients. The Standards and Recommendations for the Hospital Care of Full-term and Premature Infants of the American Academy of Pediatrics were of undoubted help to the hospitals in safeguarding the newborn.

A. Medical Service Responsibilities

I feel very strongly that for a Newborn Service to function so as to best protect the interests and welfare of its patients, it should be made the direct responsibility of a qualified pediatrician. Further, this individual must be so trusted by the trustees and the obstetric, nursing and administrative departments that he be given adequate authority to do the job. Practically every man attending this Round Table has signified that he works in or is in charge of a newborn nursery in his home area. In your hospitals is there a problem of trying to educate the hospital administration and medical administration as to the wisdom of appointing a pediatrician interested in the newborn infants to the job of being responsible for the service? Are you satisfied that in your various hospitals this problem is well taken care of?

Dr. J. Wallace Cleland, Lansdowne, Pa.: In our hospital the pediatricians couldn't get control of the hospital nurseries until the Board of Health insisted upon it.

Dr. Snelling: The situation, I think, is very important regarding the personnel who are responsible for the newborn care. I don't know what holds in many of your cities but I know what holds here in Toronto and I believe other large Canadian cities. There are two points of view: in one, the obstetricians are responsible for newborn nurseries; in the other, the responsibility is placed with a trained pediatrician. We have both points of view here in this city. In the majority of the obstetric units of our larger hospitals, care is delegated to a pediatrician who is responsible for the management of the newborn nursery. In one of our very large and modern hospitals, that is undertaken by the chief obstetrician of the hospital who has as a consultant a pediatrician—but the obstetrician is responsible for what goes on in that nursery. I may say that the man in charge does an exceptionally good job and he has a good pediatric point of view. I do not feel that the service is as adequate and as well understood as if a pediatrician were in charge of that particular nursery.

In the hospital that I am connected with, the Toronto Western Hospital, I have full responsibility for the main functioning of that nursery and I feel it is very important. If anything occurs there in the functioning of the nursery that has to do with the general welfare of the babies regardless whether the patients there are public or private, it revolves on me to take the responsibility to see that the proper course of action is carried out.

Now we all know that we can have occurrence of skin infection in a private patient and the
patient's physician, in order not to disturb the mother, will ask to have the child remain in the nursery. A spread of skin infection through the whole nursery may result. But if there is someone in charge of that nursery who will rule that the baby has to be isolated, this responsibility does not fall on the head nurse. I feel that it is extremely important to have someone with authority see that the functioning of the nursery is carried out in the best possible way.

**Dr. Stanley M. Wershoff, New York City:** How are you going to convince the administration that there should be a pediatrician in charge of the nursery?

**Dr. Snelling:** In most of the hospitals here in Toronto the obstetricians are thoroughly convinced that the care of the young child falls into another field which they are not prepared and trained to undertake and they are very glad to have it done.

**Dr. Wershoff:** Dr. Snelling, I think sometimes it is embarrassing for a man on the staff to initiate the move that a pediatrician be placed in charge of the nursery; he may not be able to get to first base on his own initiative and my thought in raising this question is that it might be a matter to be considered by the local or state Committee on Fetus and Newborn to get an impartial recommendation. That is the approach, along a general and not a personal basis. All the hospitals in an area could be called together at a meeting so this idea could be presented and explained.

**Question:** How do you manage to divide the load of responsibility in a newborn nursery where there are babies who need special care?

**Chairman Clifford:** In my conception of an ideal nursery set-up, the ultimate responsibility for the conduct of the nursery rests in one man. With the consent of the proper authorities the Nursery Service Chief may have assistants appointed who may visit on the service certain months. These men on their official visits will carry the delegated authority of the chief; however, the latter is still responsible to the Hospital and his assistants must contact him under unusual circumstances.

In a nursery of the type recommended, the majority of infants may well be the private patients of physicians other than the chief. If these patients require special care this is the normal province of the private doctor, unless the sickness be such as to be a potential health problem that might involve other occupants of the nursery. In the latter instance, should there be a difference of opinion as to management, the chief's decision carries the authority.

In some hospitals all infants are cared for by a "closed" staff of pediatricians organized under the chief. In the Boston Lying-in Hospital there is a "closed" staff of obstetricians but an "open" staff of pediatricians. This situation is necessary as the mothers come from widely scattered areas and wish their own pediatrician to examine the baby in the hospital. This practice we happen to encourage and have over a hundred men on the pediatric courtesy staff.

This does put an added load on the nursery chief for he must keep on the alert to see that the care given these infants is up to hospital standards; but in practice this benevolent supervision is welcomed and no issue between the visit and a member of the courtesy staff has ever arisen.

**Dr. Snelling:** I definitely feel that courtesy staffs should be allowed. The physician in charge of the nursery is responsible for the general over-all picture but not for the individual baby. He outlines a routine that can be used for the individual baby and in the absence of a courtesy doctor, he can adapt the routine to fit that baby; but the courtesy doctor, if possible, should assume direct responsibility for the child. I feel that if we are going to avoid socialized medicine this must be our practice.

**Chairman Clifford:** As you can gather from my preceding remarks, I too am in favor of a large courtesy staff with privileges of seeing both full term and premature infants. It is one of the most effective means of postgraduate education in the field when the system operates as it must under a measure of control by the permanent pediatric visit.

At one time in our hospital the obstetrician could invite any physician he chose to attend any private full term or premature infant. This system was found unsatisfactory as we could exercise no control over glaring breaks in technic and dangerous practices. You may be interested in our present method of operating our courtesy staff. To see a patient in our hospital a man must be on the courtesy staff. To be eligible a man must either be a member of the New England Pediatric Society or a diplomate of the American Board of Pediatrics. If too young to be eligible to take the Board, a man may apply for temporary privileges with the understanding that he must have passed his Board within 5 years of becoming eligible or be dropped from the staff. All applicants must be recommended in writing by 2 members of the active or courtesy staff and passed on by the Staff Council. (The Staff Council consists of 3 elected representatives of the Obstetric Staff and
Ex-officio: The Hospital Administrator; the Obstetrician-in-Chief; the Chief of the Out-Patient Department; the Chief Pathologist; the Chief Anesthetist and the Pediatrician in Charge.) The courtesy staff receives printed notices concerning policies and technics and is brought together on occasion for meetings. This system, with the power to expel a man from the courtesy staff, and thus from seeing patients, gives effective control over the staff and insures that hospital standards will be adhered to.

Question: Does that include the premature infants?

Chairman Clifford: Yes, any member of the courtesy staff can and does attend his private premature infant patients in the premature nursery. The routine for the care of our premature infants is written out in detail; exceptionally capable and diplomatic head nurses have charge of all prematures; the responsible pediatric visiting man and his resident house officers have direct charge of the ward prematures and exercises indirect supervision over the private patients. Under these conditions we have had no occasion to regret our liberal policy. The infrequent courtesy staff pediatrician leans over backward to cooperate and do the right thing; as stated above, the system provides perfect postgraduate education. It also creates great good will toward the hospital.

Dr. Snelling: I think that the postgraduate course the average man picks up in coming to see a baby in a well run nursery is one of the most important functions of a well run nursery—not only in regard to premature babies but with regard to care of all newborn.

B. Nursing Service Responsibilities

Chairman Clifford: Would any member of the group care to comment on the important responsibilities of the nursing service?

Dr. Earl Smith, Cleveland. In discussing the nursing service responsibility, I would like to ask your opinion about using volunteer nurses’ aides in the nursery. We are so short of help that we have instituted a program of selecting capable women from the community to volunteer one day a week for service. There has been a great deal of opposition, of course, but we have found they are of tremendous value and though the nursing service was against the program to begin with they are now asking for more volunteers. The head of the volunteer service is a capable woman. She has selected women whose children are older and whom she feels would fit into this program: people who will accept responsibility and who will come knowing that we depend on them. We have given them a 4 hour orientation course in which the organization and the problems of the hospital are explained to them. The heads of the nursing and volunteer service, etc., speak to them. They are taken through the hospital and shown the problems that we face and then one of the pediatricians gives them a talk on the newborn infant. Following a complete physical examination, they receive on-the-job training. The nursery supervisor gives them jobs commensurate with their capabilities. I feel that the number of hours of service we obtain through the year is tremendous.

Chairman Clifford: Is this in the newborn or the premature nursery?

Dr. Smith: This is just in the newborn nursery; they do not handle any baby that is not normal

Dr. Snelling: What specific duties do you allow them to do?

Dr. Smith: Initially they observe, then they feed normal infants, bathe them, change diapers, change soiled clothing, take babies to the mothers; practically every duty that the paid nurses’ aide would perform.

Dr. Snelling: Do you have any difficulty in the relationship with the mother, that is, in personal relationships? The nurse will maintain an impersonal attitude but an untrained person might display an emotional attitude and might disturb the mother’s feeling in the hospital. A nurse’s impersonal attitude can quiet an excited mother while an untrained person may say the wrong thing.

Dr. Smith: Well, of course, our big problem is that the nurses are few and the nurse situation is so bad that our mothers get practically no attention at all unless these girls are on duty. If a tense situation arises the volunteer immediately calls a nurse. They are instructed not to give any advice or make comments.

Chairman Clifford: Does any other hospital use this technic?

Dr. Roy Andrews, Mankato, Minn.: We have a training school of one year. Upon completing this course the students are put into the hospital to serve under trained nurses. I am suggesting that as an alternative; I think it should be better.

Dr. Nelson Newmark, Springfield, Mass.: I would like to ask Dr. Smith whether his volunteers are good volunteers as far as coming each time. One of the failures of volunteers is that they get
mixed up with other activities because of the goodness of their hearts and don't have time for everything.

Dr. Smith: We have tried to impress them with the fact that if they are not going to show up we are not able to use them.

Chairman Clifford: We have found, as has Dr. Andrews, the paid trained nurses' aide to be invaluable—even in the premature nursery.

C. Records and Vital Statistics

Chairman Clifford: I would like to ask this group if we should suggest to the Academy's Committee on Fetus and Newborn that they provide forms for the uniform reporting of statistics from our individual hospital newborn services. It would be my thought that the Committee might serve as the central clearing house for these reports and once a year publish tables of results in PEDIATRICS. Each hospital would be identified by a code number known only to it and the Committee. Perhaps the Committee might find a prize to give the best report and one for the hospital showing the greatest improvement over a predetermined period of years.

Dr. W. R. Whitty, Evanston, Ill.: I think that would be an excellent plan.

Dr. Snelling: I think it would be an excellent plan to stimulate greater interest in the subject for a man who is working by himself to know what is done in other places. All of us do what we think is best but if we could compare our work with that of others, it should stimulate us to improve. We should also try to help others by forwarding the information we have.

Chairman Clifford: To pursue the thought still further, the forms furnished by the Committee on Fetus and Newborn should contain a definition of "premature-birth," "live-birth" and "still-birth." I would like to campaign for the universal reporting of premature mortality in hospitals in terms of deaths per 1,000 live births in addition to mortality in percentages; for instance 2 hospitals can report identical premature mortality rates of say 15%; the first hospital with an incidence of prematurity of 5% loses 8 babies per 1,000 total live births while the second hospital with an incidence of 10% prematures loses 15 babies. Furthermore it would be my hope that data from individual hospitals would include pregnancy wastage, total number of pregnancies and their outcome as fetal deaths, neonatal deaths and survivals according to gestational age. (I. Less than 20 completed weeks; II. 20 weeks completed but less than 28: III. 28 completed weeks and over: IV. Unknown.)

D. Construction and Utilization of Facilities

Pediatric Observation Nursery

I would like to recommend that every maternity hospital have an observation nursery for full term infants with a history of (a) difficult resuscitation; (2) difficult labor; (c) intra- or extra-uterine anoxia; (d) breech delivery; (e) abdominal delivery; (f) postmaturity; (g) yellow vernix; (h) congenital malformations; (j) erythroblastosis; (j) maternal diabetes; (k) previous sibling with difficulty in newborn period; and (l) maternal problems such as sterility, repeated abortions or miscarriages, etc. Our experience has shown that by so screening infants at birth and immediately sending them to a pediatric observation nursery it is possible to capture 95% of the neonatal mortality and morbidity.

II. PRENATAL MANAGEMENT

Chairman Clifford: Modern medicine has effected marked reduction in infant mortality; however, this has been accomplished in the main by reductions in the age groups beyond the neonatal period. In spite of all the efforts of private and governmental groups the degree of reduction in neonatal mortality, of which prematurity contributes 60%, has been most discouraging during the past 15 years. It is my belief that real reductions in neonatal mortality will follow methods of management that reduce total pregnancy wastage. In fact the field of prenatal pediatrics is virgin territory, the exploration of which may offer rich rewards.

A. Diet-Infection-Socio-Economic Status

Chairman Clifford: Do you wish to speak about nutrition, Dr. Snelling?

Dr. Snelling: Certainly. Dr. Ebbs and Dr. Tisdall have carried out a study which showed that the incidence of prematurity and other birth accidents were greatly minimized by a few supplements to
the ordinary diets of people who were in the lower income group. Without any question, it is shown statistically that there was great benefit obtained with the addition of extra vitamin D, extra vitamin C and a little extra protein to the diet. The additions to the diet were not great when you consider them, but they did decrease the incidence of birth accidents and the difficulties encountered in the first few days of life of the baby.

New Speaker: That is perfectly correct but the difficulty is that, though the women who come to the clinic can be followed and given these supplements, the great percentage of prematurity are in the women who don’t attend these prenatal clinics. Those are the ones who are not particularly interested in whether they get a good diet and, therefore, we have the high percentage of prematurity.

Dr. Snelling: That is purely a matter of educating the man in practice. The general practitioner and the obstetrician do an excellent job. I don’t know what holds in other centers but I do know that of late years the obstetricians here are becoming more interested in a complete diet rather than something to keep the mother’s weight down; also they are interested in doing something about her electrolyte balance if she has a tendency toward retention. Previously an obstetrician was interested in just weight, in the diet, if the pregnant woman was gaining too much to cut down the total calories and if she was having some edema to cut down her salt. But of late years they are interested in the vitamin supplement and proper protein intake. I feel that it is purely a matter of education; when they see the value of instituting this kind of program, better progress will be made.

Chairman Clifford: If diet and nutrition can influence the occurrence of congenital defects and prematurity, the causative factors at least for the former must be operating early in pregnancy. Perhaps the correction of diet at the first prenatal visit at 2 months may already be too late. I have records to show that premature infant incidence and mortality is higher in the charity-type hospital where patients in the lowest socio-economic group are attended and who in many instances appear as an emergency for delivery with no prenatal care whatsoever. The provision of a favorable nutritional environment for all women at the moment of conception is a problem involving health education of the entire population and raising the standard of living for the whole community.

Dr. Snelling: What is the incidence of women arriving at the hospital in the state you mentioned, totally unsupervised up to the point of delivery? I don’t think that happens here except perhaps in our outlying districts and it doesn’t hold even in our smaller town that patients going into the hospital haven’t had supervision.

Chairman Clifford: My point is that even though prenatal care begins at 6 weeks of pregnancy the fetal damage may already have taken place.

Dr. Snelling: But in the work done here, those were the women who were improved.

Chairman Clifford: It did improve them but only by reducing the incidence of prematurity. Is that not correct?

Dr. Snelling: Yes.

Dr. Carl Zelzon, New York City: I work in one of the city hospitals in New York City and of the total babies delivered in a year, I would say at least one third never have been to a prenatal clinic. We have a premature birth rate almost twice that of the rest of the city.

Chairman Clifford: Burke, Stevenson, Worcester and Stuart have and still are conducting such studies in our hospital. They used protein intake as the index of an adequate diet and found that when there was gross inadequacy of diet the incidence of prematurity and congenital anomalies increased. Since the injury responsible for congenital defects must take place in the first or second month of pregnancy, we have a big job to get the women of child-bearing age in the population in good physical condition which includes good nutrition prior to conception.

The role of infection in producing fetal disease and congenital malformation in the early weeks of pregnancy has been explored in connection with rubella. Whether other infections of bacterial or viral origin can affect the fetus is a matter of current study. It would be of interest to hear if members of this group have had any personal experience bearing on this subject.

Dr. M. B. Low, Greenfield, Mass.: I have seen 2 such cases in the last 5 years and both turned out badly. I think rubella is sometimes hard to diagnose unless it is epidemic at the time. One of the babies is very defective generally and the other was born with cataracts, microcephaly and tetralogy of Fallot.

Chairman Clifford: Certainly the damage rubella may inflict on the fetus is susceptible to prevention. The prevention consists in seeing that all young women contract the disease prior to marriage. I have heard rumors, for whose accuracy I cannot vouch, that certain summer camps
for girls in England make an effort to introduce rubella into the group. Such a practice might be worth considering in our girls' camps and schools.

Dr. Snelling: Supposing rubella arises in the home and in one of the children—is there any prophylactic measure that should be used with the mother if there is a question whether she has or has not had them in the past?

Dr. M. B. Low, Greenfield, Mass.: I don't think Dr. Aims McGuinness would mind my quoting him on that. Talking to me about that yesterday, he said he believes that you would have to give at least 20 cc. of gamma globulin in order to get any prophylactic result in rubella. He has had 2 cases of rubella in young women to whom he has given 20 cc. of gamma globulin.

Dr. John C. Williams, Philadelphia: I have had a pregnant patient with herpes zoster who delivered a baby with a congenital defect; the infant died.

Chairman Clifford: It is difficult to gather reliable evidence as to the role of other types of maternal infection on the fetus. For one type of fetal damage the injury must take place in the first 2 months following conception. This means that the obstetric history must be carefully obtained at the first prenatal visit and even then memory as to the infection 2 or 3 months previous may be vague and unreliable. We use a special rubber stamp on the record to remind the examiner to inquire into possible infections.

A second and increasingly important type of fetal infection may occur late in pregnancy. In both toxoplasmosis and hepatitis the infant may be actually infected without the mother having had any recognizable symptoms. An increasing number of cases are being reported wherein the infant has acquired a bacterial infection in utero and has septicemia or meningitis on delivery. A few cases are on record of a fetus that had poliomyelitis along with its mother.

The gathering of information on fetal infections might be another worthwhile project for our Committee on Fetus and New Born.

B. Sterility and Miscarriage and C. Premature Birth

Chairman Clifford: One of the most promising approaches to the problem of reducing pregnancy wastage has been provided by the researches of Smith and Smith working at the Free Hospital for Women and at the Boston Lying-in Hospital. These workers believe that in toxemia, premature delivery and intrauterine death there is a deficiency of the placenta in the secretion of estrogen and progesterone. This deficiency can be estimated by pregnanediol measurements on the urine. They contend that there is a reciprocal relationship between the vascular supply to the uterus and the production of placental steroid hormones. Through the prolonged administration of synthetic estrogen diethyl stilbestrol, they stimulate the placental secretion of sex steroids and improve the vascular supply to the uterus. The effects of diethyl stilbestrol administration to 387 presumably normal primiparous women was compared with 555 primiparous controls; the treated group had an incidence of one third as many toxemias, one half as many premature births, one third as many postmature infants and one fourth the fetal mortality rate.

Smith and Smith have given stilbestrol to 1191 pregnant women, in an attempt to avert threatened abortion or to prevent late complications that might have been anticipated in view of their medical or past obstetric histories. The birth weights of the premature group according to gestational age were 86% above the expected. The birth weights and lengths of the premature infants of 387 normal primigravidas treated with stilbestrol were compared with similar data from 555 normal untreated primigravidas; the stilbestrol group was 90% above the average while the controls were 60%. The stilbestrol premature babies had a mortality rate of 6.3% compared with a rate for the controls of 16%. When subdivided into comparable 500 gm. weight groups the stilbestrol infants still had a markedly lowered mortality rate over the controls.


Smith and Smith have just announced a new discovery, as yet unpublished, that may have an important influence on the infants of toxemic mothers. They found that large doses of penicillin (1,000,000 units intravenously followed by 500,000 to 1,000,000 units orally every 2 hours) will neutralize the menstrual toxin, held to be the cause of toxemia, producing a rapid fall in urine albumin and a slower fall in maternal blood pressure. They emphasize that this treatment will not
The management of the severe diabetic patient (of long duration with extensive vascular damage) according to the technic worked out at the Joslin Clinic and the Boston Lying-in Hospital by Drs. Priscilla White, Warren Sisson, Sidney Gellis, Luke Gillespie and Bristol Nelson furnishes yet another exciting example of how pregnancy wastage can be reduced. Untreated, this group of patients have a pregnancy wastage rate of 55%; treated by sex hormones during pregnancy and delivered at 35 weeks of gestation, the pregnancy wastage has fallen to 10%.

It is of more than passing interest that a powerful growth stimulus is present in this diabetic group, for the infants at 35 weeks' gestation are much more mature as judged by birth weight and length and activity than similar age infants from other sources. I have personally examined bona fide 35 week infants of this group weighing 8 to 9 pounds and 21 to 22 inches in body length.

D. Postmaturity

Chairman Clifford: Many years ago considerable attention was paid to the postmature infant in this country. At that time it was reasoned that prolonging pregnancy would result in a day-by-day increase in size and weight with its resulting problem of delivery. When scientific studies proved that a big baby was big by its 38th week and that there was but slight growth in weight and size beyond this period, obstetric interest in the problem disappeared to the point that Eastman's most recent text of obstetrics states that postmaturity presents no obstetric problems.

Over a number of years I have been interested in trying to correlate the infant's clinical condition at birth with his gestational age. A large group of postmature infants can be diagnosed at birth almost at a glance. These infants are long and thin, almost malnourished; their skin, nails and cord may or may not have a golden yellow stain; their skin is invariably cracked, peeling, shiny and parchment-like; there is practically no vernix caseosa present on the skin at birth. Furthermore these infants have a high incidence of morbidity and a higher death rate than expected for full-term infants.

We have recently made a statistical study of the postmature infant (Clifford, S. H., Reid, D. E., and Worcester, J., Postmaturity, Am. J. Dis. Child 82:232 (Aug.) 1951) and found they were responsible for much pregnancy wastage. Postmaturity was found an especial hazard to the primigravida; after 300 days gestation one in every 10th infant died. For the primigravida 26 years of age and over who delivered after 300 days' gestation, one in every 3rd infant died. Studies are continuing but have not reached a point where specific recommendations as to management or treatment can be ventured.

Dr. H. H. Hildebrand, Ames, Iowa: Would you say a word about diabetic babies?

Chairman Clifford: Babies of mothers with severe diabetes are apt to have a difficult time. They are usually hypotonic and edematous with a great deal of respiratory distress, atelectasis or hyaline membrane disease, if you wish. Their lungs are poorly expanded and they have 3 or 4 days of touch and go. Fortunately these symptoms disappear gradually and most of them recover. We keep these infants in an atmosphere of 50% oxygen to which we have recently been adding water vapor by running the oxygen through a nebulizer. I am not so sure yet whether the high humidity improves the results over that to be expected using oxygen alone.

III. Management in the Neonatal Period

Dr. Snelling: I am concerned about acquainting the young pediatrician going out in practice and maybe some of the older pediatricians with what the normal course of events is with a baby after birth. When I started in practice I remember being called to see a baby born by cesarean section, a pale baby with feeble respirations; I remember wondering what I should do and how to tell that everything was all right. I remember telling the father that everything was all right and going back in an hour to take another look and finally finding that everything was all right. During that period I had no idea what was going to happen. I feel that before he has had considerable newborn experience, the average doctor would not know when there is danger and when there isn't.

Another situation that every one of us meets is that of vaginal bleeding in the newborn period. That is a perfectly common phenomenon which requires no action. It occurs frequently but I know of a number of these cases that have been referred to the Sick Children's Hospital as hemorrhagic
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disease of the newborn just because of the vaginal bleeding. Then, you have also seen a number of babies in that period have a vaginal discharge. That is another thing that is quite common. I have been called to determine whether a child has a congenital heart because it had discoloration of the face as a result of bruising occurring due to changes of pressure during labor.

It takes months or years of experience to know what is normal at that particular period of life and what isn't. I feel that our course of training, certainly for house doctors and people going into practice, should be an extensive period of observation of the normal in the newborn period.

Chairman Clifford: That is an important point, Dr. Snelling! Our hospital is, I believe, the only one in the East that allows medical students, visiting physicians and postgraduate students entry into the well baby nurseries and even the premature nurseries. This practice has been in operation over 20 years with no evidence that it has created an infection hazard in the nurseries.

A. Resuscitation

Dr. Snelling: I would like to know the number of cases that end up as useless individuals in cases of difficult resuscitation where there has been some cerebral anoxia and death of tissue. Also, in the less severe cases, will keeping a child in high oxygen atmosphere enable the damaged cells to recover and possibly prevent the process from returning?

Chairman Clifford: I do not know if there are a certain number of damaged cells in the central nervous system that may recover in the presence of adequate oxygen—McKhann postulates that there are and that certain cells may be in this borderline state for years. However, this theory has not been accepted by other workers. I believe that the damage produced by intrauterine anoxia can be extended by extrauterine anoxia and insofar as oxygen administration eliminates this further anoxic damage the child's mental future will be safeguarded. The damage already done is irreversible; it may be extensive or minute, it may be manifest at once or it may take years for the localized injury to become evident.

Chairman Clifford: Does anyone do intubation under direct laryngoscopy in routine resuscitation?

Dr. Robert E. Long, Berkeley, Calif.: In our hospital these are done by an anesthetist in the delivery room. They are trained and they do it first before the baby comes to the private hospital. The baby is not sent to the nursery until the anesthetist has discharged him completely and seen that the area-way is clear.

Chairman Clifford: Does he do this to every baby?

Dr. Long: Yes, to every baby—that is, every baby who has trouble. These anesthetists are trained to do this and I think it has done a great deal of good.

Chairman Clifford: Do you think that we could reduce infant morbidity and infant mortality if this were done on every baby who seems to be in trouble?

Dr. Long: I think if you have a man especially trained to do this it certainly would be of great benefit.

Dr. Snelling: We do largely that type of procedure but only in those cases where it appears that things are not going to right themselves. I feel definitely that when done by a thoroughly trained person, the procedure does no damage. Certainly a person who has not had any experience with intubation should try it. Some of you may have seen the article published by Dr. John Fletcher and Dr. Jocelyn Rogers from the Toronto General Hospital, in which they showed they had resuscitated a much higher percentage of babies than in a previous period by carrying out that type of procedure. One of the points that they brought out was that of introducing oxygen into the trachea after a catheter has passed into it, to cut down the pressure to a very low level. That is where more damage is done—by running oxygen at too high a pressure. They had on the apparatus a reducing valve that would cut down to a low pressure. I think this is one of the important features in intubation—to make sure that you don't do damage by blowing the lungs up with an oxygen pressure that is way above what the baby can stand.

Chairman Clifford: I have always been fearful of the damage that might result to the infant through enthusiastic direct intubation by unskilled persons. It was my privilege to be a member of a panel discussing this problem and I recall Dr. P. Flagg's warning that intubation under direct laryngoscopy should only be attempted by a trained person and then only when the infant has reached the hypotonic-flaccid-reflexless stage of asphyxia. He could not recall a patient where there was material to aspirate that might have been causing obstruction. The whole point of the intubation was to introduce oxygen directly into the trachea.
Dr. C. Collins-Williams, Toronto, Ont.: I would like to ask how many minutes you should wait before you do any tracheal aspiration?

Dr. Snelling: One should wait about 5 minutes at least. I have been present at a number of cases of special deliveries and particularly in some instances of breech deliveries where the infants may have swallowed a lot of fluid down the ordinary clearing; removing the fluid takes a lot of time. My feeling is that one shouldn’t rush in within a short time and then there is a limit that one should not go beyond. I would say that 5 minutes should be the laboratory level. That is my personal opinion.

B. Management of the Premature Infant with Relation to Retrolental Fibroplasia

Chairman Clifford: Dr. Julian F. Chisholm has outlined the 6 stages in the development of retrolental fibroplasia:

Stage 0: Normal.
Stage 1: Enlarged arteries and veins—relatively straight.
Stage 2: Greater dilatation with tortuosity.
Stage 3: Stage 2 plus generalized retinal edema with some hemorrhage and/or vitreous haze.
Stage 4: Stage 3 plus hemorrhage into the vitreous and/or localized retinal detachment.
Stage 5: Stage 4 plus disturbance in disc margins from retinal fold or partial peripheral or central membrane formation.
Stage 6: Partial to complete occlusion of the lens by membrane.


The eyes of all premature infants of 4 pounds birth weight and under should be examined by an ophthalmologist approximately every 2 weeks from birth to 3 months of age. Early changes may be detected in the first week; however, the changes usually begin to appear in the second or third week, but may start later. The baby is usually considered safe if changes have not appeared by 3 months.

About half of all infants of 4 pounds and under progress to Stage 3; the vast majority then spontaneously return to normal. Some infants advance to later stages where they may remain or again may undergo spontaneous regression. All eyes reaching Stage 5 have some permanent interference with vision.

Unfortunately the cause of this condition is still unknown and there is no known method of successful prevention or treatment. All methods of treatment to date, including ACTH and cortisone, have been disappointing.
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