ORAL ADMINISTRATION OF OESTRIN TO PREMATURE BABIES

BY

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The premature infant has a very precarious hold on life, and the neo-natal mortality of these babies is high. Therefore any treatment likely to reduce this loss will be eagerly received by both obstetricians and paediatricians.

In an article in the *Archives of Disease in Childhood* Moncrieff (1936) gives the results of an investigation at Queen Charlotte's Hospital into the use of subcutaneous injections of oestrin for premature babies; in this he reports that Aschheim (1927) suggested that premature babies might be benefited by the administration of oestrin. The arguments in favour, according to Martin (1929) are:

1. The blood of newly born babies contains a comparatively large amount of oestrin.
2. This is rapidly excreted by the kidney, and the urine is oestrin-free after about four days.
3. A baby born prematurely is at a disadvantage because it lacks the stimulus of the oestrin which would normally have been present in its blood had it remained *in utero*.
4. The administration of oestrin helps to make up this deficiency.

Moncrieff gives a résumé from the literature of previous experience with oestrin and then adds the results of his own investigations. His conclusions, based on the results with eighty premature babies, some treated and some as controls, were that "subcutaneous injections of oestrin during the first seven days of life have a slight stimulant effect as indicated by a better gain in weight than in babies not so treated. This improvement is more obvious in girl babies than in boy babies." Moncrieff does not consider the advantage definite enough to justify the use of oestrin as a routine treatment, however.

Since about September, 1936, oestrin has been used orally for premature infants at the Bristol Maternity Hospital. In personal experiments in feeding mice with oestrin it was found to act as well given orally as when injected, although a larger dose was necessary. Therefore it was decided to give the babies an oral preparation to avoid the unnecessary trauma of daily or more frequent injections, and Schering's preparation of progynon dragées was selected for use. Lately these have been supplied free by Messrs. Schering Ltd.

The dose decided upon and found satisfactory was half a dragée twice daily. This is equivalent to 500 international units twice daily. One dragée was dissolved in two drachms of warm (not hot) water, and one drachm given as a dose. At first the oestrin was given with little faith in its efficacy, but the nursing staff soon reported that the premature babies were causing less anxiety; the initial loss of weight appeared to be less, and this was usually made up sooner. These babies were very carefully tended, but only under the same conditions as could be obtained in any ordinary home.

Since using oestrin no premature baby born at this hospital to whom it was administered has died; a number of the babies were under 4 lb. at birth, and all have been born during the coldest six months of the year.

Therefore, although the series was only a small one, it seemed to be worthy of record.

Before giving details of the premature babies it might prove of interest to mention one sick infant, a boy, who appeared to be benefited by progynon. In this case the maternal history revealed the presence of toxæmia, albumin ++, and marked oedema; the blood pressure was 168/110. Medical induction took place on November 23, 1936, at thirty-nine weeks. The baby weighed 7 lb. at birth, and the mother having no breast secretion, was artificially fed; he developed gastro-enteritis. His weight fell to 4 lb. 14 oz. at 2 weeks, and he was very ill. At this stage, his weight being under 5 lb., it was decided to add progynon to the other treatment, and this appeared to help. The baby eventually did well, gaining 1½ lb. weekly and weighing 12½ lb. at 4½ months.

Two premature babies not born in the Bristol Maternity Hospital are included in the following series, as they were born during the period under review and received the progynon treatment.

Case Histories

Cases 1 and 2.—Premature girl twins. The mother had albuminuria, hydramnios, and oedema of legs. The first baby weighed 4 lb. 7½ oz. at birth, and 4 lb. 7½ oz. at 2 weeks; and the second baby 3 lb. 10 oz. at birth, and 3 lb. 10½ oz. at 2 weeks. Both did well and were discharged at 2 weeks.

Case 3.—Baby girl born September 9, 1936, at thirty-five weeks, of healthy parents. Weight 3 lb. 12 oz. There was a large swelling of the head below the occiput and extending downwards into the neck. The swelling was mostly cystic, with a small portion more solid. The skin was deficient over this swelling. Operation was performed at twenty-four hours, a meningocele and a small encephalocele being removed, with redundant skin, etc., and the healthy skin sutured. The patient was feeble at first, but always took feeds well. She was discharged at 4 weeks, 3 lb. 14 oz. in weight. At 6 months she weighed 11 lb. and seemed normal in every way.

Case 4.—Baby girl. Third pregnancy. Terminated November 23, 1936. Maternal history: first baby premature, lived one week; second baby normal, but pre-eclampsia present during the pregnancy. No evidence of toxæmia, but labour started spontaneously at thirty-three weeks. Baby 3 lb. 12 oz. at birth. She lost weight for over a week, but gained 1 oz. daily for last four days, and was discharged at 2 weeks, weighing 3 lb. 10 oz.

Case 5.—Baby girl. Maternal history: toxæmia, albuminuria +, oedema +, blood pressure 190/90. Medical induction took place at thirty-eight weeks, on November 19, 1936. The infant weighed 4½ lb. at birth and 5 lb. at 2 weeks.

Case 6.—Baby boy. Maternal history: chronic nephritis, two previous miscarriages. The mother had been on diet and treatment throughout pregnancy, but had become very toxic; blood pressure 210/144, oedema +, albuminuria ++. Surgical induction on February 3, 1937, at thirty-three weeks; weight of baby at birth, 3 lb. 13 oz.; at 18 days, 4 lb. 1 oz.

Case 7.—Baby girl. Maternal history: mother pre-eclamptic; blood pressure 176/110, oedema +, albuminuria ++; no improvement with treatment. Medical induction performed on February 8, 1937, at thirty-six weeks. Weight at birth, 3 lb. 8 oz. Patient discharged at 17 days weighing 4 lb. 2½ oz.

Cases 8 and 9.—Twins (monovular, girls). Maternal history: mother 36 years old, this being her second pregnancy; there was toxæmia, albuminuria +, oedema ++; and the blood pressure was 160/110. Case 8 weighed at birth 4 lb. 7½ oz., and at two weeks 4 lb. 12 oz. Case 9 at birth was 4 lb. 1½ oz., and at 2 weeks 4 lb. 7½ oz. The weights at 3 weeks were Case 8, 5 lb., and Case 9, 4 lb. 13 oz.

Case 10.—Baby boy. Maternal history: the mother was 36 years old, and had been married ten years. This was her

first pregnancy. Spontaneous labour occurred at thirty-six weeks, with a difficult breech delivery. The baby was somewhat shocked, and weighed 4 lb. 15 oz. at birth. On discharge at 2 weeks his weight was 5 lb. 4 oz.

Case 11.—Baby boy. Normal healthy parents. Spontaneous delivery at thirty-five weeks. His weight was 5 lb. 3½ oz. at birth, 5 lb. 5 oz. at 2 weeks, and 8 lb. 12 oz. at 2 months.

Table of Results (No Deaths)

Case No.	Sex	Weight		Age on Discharge
		At Birth	On Discharge	
1	Girl	4 lb. 7½ oz.	4 lb. 7½ oz.	2 weeks
2	"	3 lb. 10 oz.	3 lb. 10½ oz.	2 "
3	"	3 lb. 12 oz.	3 lb. 14 oz. + operation	4 "
4	"	3 lb. 12 oz.	3 lb. 10 oz.	2 "
5	"	4 lb. 8 oz.	5 lb. 0 oz.	2 "
6	Boy	3 lb. 13 oz.	4 lb. 1 oz.	2½ "
7	Girl	3 lb. 8 oz.	4 lb. 2½ oz.	2½ "
8	"	4 lb. 7½ oz.	4 lb. 12 oz.	2 "
9	"	4 lb. 1½ oz.	4 lb. 7½ oz.	2 "
10	Boy	4 lb. 15 oz.	5 lb. 4 oz.	2 "
11	"	5 lb. 3½ oz.	5 lb. 5 oz.	2 "

Summary

Details are given of eleven premature and one sick baby treated with progynon. This preparation of oestrin, given orally, appears definitely helpful to premature infants. The babies cause less anxiety. The feeds are taken better; the initial loss of weight appears less and is usually made up sooner. No baby to whom it was given died.

REFERENCES

- Aschheim (1927). *Arch. Gynäk.*, **132**, 179.
 Martin, E. (1929). *M Schr. Geburtsh. Gynäk.*, **82**, 66.
 Moncrieff (1936). *Arch. Dis. Child.*, **11**, 2.

R. Opsahl (*Norsk Mag. Laegevidensk.*, April, 1937, p. 9) has scrutinized the records of necropsies at the Ullevaal Hospital in Oslo for the twenty-year period 1916–35, with special reference to primary malignant disease of the lungs. During this period 2,005 cases of carcinoma and sarcoma came to necropsy, the malignant disease being in some of these cases an incidental finding. In addition to the fifty-six established cases of primary malignant disease of the lungs (twenty-eight men and twenty-eight women) there were fourteen cases in which this diagnosis was uncertain and eight in which it was possible but not probable. The age incidence was greatest between 50 and 60 (seventeen cases)—a little earlier in life than in other forms of malignant disease, which reached their maximum frequency between 60 and 70. Only in eleven of the fifty-six cases were the new growths diagnosed clinically. The duration of the disease was usually between four and twelve months. The fifty-six cases were classified in four five-year groups and in relation to the total number of cases of malignant disease in each five-year group. In the first five years primary malignant disease of the lungs constituted 1.8 per cent. of all the cases of malignant disease in this period. The corresponding figures for the next three five-year periods were 2.7, 3.1, and 3.1 respectively. Putting these figures to the test of modern statistical criteria, the author comes to the conclusion that his material gives no support for the assumption that there is a real increase in the incidence of primary malignant disease of the lungs.

VACCINE TREATMENT OF MEASLES

BY

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Measles is typically a disease of childhood, the majority of the patients being attacked in the first five years of life, and although it is still regarded by the general public as a trivial illness, its complications, both immediate and remote, are severe enough to constitute a major medical problem. Bronchopneumonia remains the most serious and dreaded complication, and is largely responsible for the present mortality rate.

Wynn of Birmingham has for some years advocated the use of a special vaccine in the treatment of pneumonia and bronchopneumonia. His results have apparently been good in those cases in which the diagnosis is made early and the appropriate vaccine treatment instituted in the first twenty-four to forty-eight hours of the illness. The vaccine for bronchopneumonia contains equal numbers of pneumococci, haemolytic streptococci, and Pfeiffer's bacilli. Fresh cultures are used and the organisms are killed by heat. Wynn (1936) recommends 600 million organisms—that is, 200 millions of each organism—as a suitable injection dose for an adult. Children require proportionately smaller doses, but at 1 year old 20 millions of each organism can be given with impunity. Three such injections subcutaneously at intervals of twenty-four hours are recommended.

Production of Reactions

The vaccine treatment of acute infections has not found favour owing to the fear of producing reactions in a patient who is dangerously ill. According to Wynn this is a fallacy, as reactions occur in chronic infections only when patients are sensitized and specific antibodies are present in the circulation. In the early stage of an acute infection antibodies are absent, and therefore these reactions do not occur. Immunotherapy by vaccine treatment aims at the production of antibodies at an earlier stage than would usually be the case. Specific antibodies do not appear for several days, but the vaccine used is stated to have an immediate effect in that it stimulates the production of non-specific antibodies—various bactericidal substances which appear in the circulation. These are later supplemented by the specific antibodies, but the greatest stress has been laid on the value of the non-specific immediate response to the vaccine injections, which if given sufficiently early are claimed to abort the infection.

In measles bronchitis is present in the early stages in all but the mildest and modified cases. It usually clears up in a few days; but occasionally, and especially in poorly nourished and debilitated children, it progresses to bronchopneumonia. The detection of bronchopneumonia is very difficult at times, and it is only by taking into consideration the general condition of the patient, in conjunction with the various physical signs and symptoms, that one can hope to arrive at a reasonably accurate diagnosis. Areas of lung collapse are met with in young children with acute bronchitis and may easily be mistaken for areas of pneumonic consolidation.

In this investigation we decided to treat only those patients suffering from measles in the various stages of development up to the time of the appearance of the full-blown morbilliform eruption. All late cases with