Vitamin B₁ and Painless Childbirth

SIR,—My attention was recently directed to an article in the *Soviet News* (Jan. 10, 1947) entitled: "Painless Childbirth—a Promising Soviet Experiment." The following extracts present the main points:

"It has been observed that the urine of women in childbirth, even in cases where the ordinary diet includes a sufficiency of vitamins, contains an exceptionally small quantity of vitamin B₁. This suggests that the body's demand for this vitamin is stepped up during the childbearing process."

To determine whether deficiency of vitamin B₁ had any relationship to the pain experienced during childbirth, the Central Institute of Obstetrics and Gynaecology of the U.S.S.R. carried out an investigation in Leningrad in 1945 and over 900 painless births were achieved. Different routes of administration were tried:

"At present the usual procedure is to begin with an intramuscular injection of 60 mg., followed, if the pains recur, either by another smaller injection or by doses through the mouth at an interval of half an hour. . . . Relief from pain was felt within 10 to 15 minutes of the first injection. In nearly half the test cases, 40%, the pains were relieved during the whole process of birth. In 51.2% of the cases there was a prolonged alleviation of pain. In 3.2% of the cases the effect was of short duration. Only in 5.6% was no relief experienced. . . . The expectation that vitamin B₁ would not only relieve pain, but speed up the process of delivery, was based on such facts as that a deficiency of vitamin B₁ in the organism of a woman in childbirth was known to lead to a decrease in the formation of glycogen, resulting in the exhaustion of the muscular tissues. The introduction of the vitamin, therefore, by facilitating the accumulation of glycogen in the muscular tissue, would create a reserve of energy of extreme importance in parturition, which demands a big expenditure of muscular energy, often over a considerable period of time. The introduction of the vitamin does in fact speed up the process of delivery to a very marked extent: the average time is halved."

Confronted by these facts I decided to put them to the test. Ten consecutive patients admitted to the maternity ward were given vitamin B₁ during the first stage of labour. The dosage adopted was 50 mg. of the vitamin by intramuscular injection followed by 3 mg. orally at half-hourly intervals. There was no marked alleviation of pain in the first seven cases so the dosage was increased to 100 mg. intramuscularly in the remaining three.

Four of the patients said the injections had no effect on the pains, four were relieved for a short period (approximately one hour), and two stated that the pains became more severe after the injections. The increased dosage did not appear to have any different effect on the pains. There was an apparent decrease in the duration of labour after the vitamin was given in all cases, but this was impossible to assess accurately without controls. All the babies were born normally and were unaffected by the treatment.

This series of cases is too small to yield statistically significant results and no definite conclusions can be drawn. It was intended as a preliminary experiment before proceeding to a full-scale investigation with a controlled group of patients. Unfortunately I am unable to carry out this investigation, but would suggest, in view of the importance of analgesia in labour, that some other investigator continue this research in order to confirm or disprove the Soviet claims.—I am, etc.,

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D. M. ZAUSMER.

Pethidine in Labour

SIR,—In her comprehensive article on pethidine in labour (April 5, p. 437) Miss Josephine Barnes touches on the effect of pethidine on the *duration* of labour. She suggests that to assess this accurately a controlled experiment is necessary, the drug being given to alternate primigravidae in labour.

While I was working in the Nuffield Department of Obstetrics and Gynaecology at Oxford, I undertook such an experiment with the help of Mr. C. Scott Russell, who was responsible for the statistical analyses. The patients selected were primigravidae of 38 or more weeks of pregnancy in the first stage of labour, and they were allotted to a pethidine group and a control group in rotation. On admission, the descent of the head and the dilatation of the os were determined. The first

group were given pethidine, 100 mg., at once by intramuscular injection. This was repeated every four hours so long as sedation was required. No other sedative was used, though gas-and-air analgesia was allowed. The second group were given a mixture of tinct. opii and chloral, morphine, or heroin and "hebaral" according to requirements. They, also, were allowed gas-and-air analgesia.

When there were 13 patients in each group a pilot survey was carried out to see whether the experiment was likely to yield any useful information. The total duration of first and second stages was estimated, and the average for each group was calculated. The average of the pethidine cases was 20 hours as against 26 hours for the control group. An analysis of variance, however, showed that the variation within the groups was so great that the difference between the groups was nowhere near significance level.

The experiment was therefore continued in a modified form. The total duration of first and second stages obviously was not a good estimate of the effect of the drug, so in subsequent cases the time from the onset of treatment till the delivery of the baby was recorded. It was thought that useful information might be obtained by analysing the cases in such a way as to compare more accurately like with like.

Each group was subdivided into four categories according to the descent of the head on admission—high, engaged, mid-cavity, and deep. In each category cases were tabulated according to dilatation of the os (0-5 fingers) and age (under 25, 25-35, over 35). It was then fairly easy to select pairs, one from each group, that could reasonably be compared with each other. In selecting each pair I made certain that the weights of the babies were alike and also the mode of delivery—for example, a patient who had had a spontaneous birth was not compared with one who was delivered by forceps. By this means of selection 21 comparable pairs were available for study. They showed that from the time of commencement of treatment the labour of those patients having pethidine was shorter than in controls 10 times, longer than in controls 10 times, and exactly the same once. In fact, it was obvious from superficial inspection that there was no material difference in the two groups.

This experiment, then, did not justify any conclusion as to the effect of pethidine on the *duration* of labour. I record it only in order that others attempting to elucidate the point may design their experiments in such a way as to reach a more helpful conclusion.—I am, etc.,

London, E.1.

ELIZABETH M. ROSE.

A Spinal Injury Centre

SIR,—As a recent importation into a mining area I hesitate in the face of greater experience, but I would appreciate the opinion of other general practitioners in such areas on the question of spinal injuries in the mines. I gather that such injuries are not uncommon as a result of rock and coal falls and usually take the form of compression fractures or spinal contusion. After such injuries, with laminectomy, etc., duly performed when indicated, the patient returns, only too commonly, to his own home an object of pity, invalid or semi-invalid, to exist on a pittance of compensation aided by public assistance. Eventually ascending urinary infection or ascending degeneration of the cord concludes his story, but this may be many years later.

I would suggest that there is a strong case for a spinal injury centre, on the lines of the Head Injury Centre at St. Hugh's, where such cases could be transferred as soon as they are fit to travel from the local hospitals. Here due attention could be given to mental as well as physical rehabilitation; the man could have the benefit of the best consultant opinion, orthopaedic and neurosurgical, and there would be no problem of shortage of accommodation. The project could deal with all industrial spinal injuries of major character, or, if the Coal Board should consider the problem as important as the provision of hair cream in pit-head baths, perhaps they would like to sponsor the idea for the injured miner.—I am, etc.,

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K. V. JACKSON.

* * An account of the miners' rehabilitation centre at Berry Hill Hall was given by E. A. Nicoll in an article entitled "Rehabilitation of the Injured" in the *Journal* of April 5, 1941 (p. 501).—Ed., *B.M.J.*