NITROUS OXIDE ANALGESIA IN OBSTETRICS.

Dr. E. I. McKesson, of Toledo, Ohio, has an interesting article in the *Modern Hospital* on Nitrous Oxide Analgesia in Obstetrics. He says, in part:—

Nitrous oxide analgesia is so unlike twilight sleep or anything suggesting sleep that had the word not been popularized with the public it would be better not to use even the term, "*American* twilight sleep," to distinguish it from *Daemmerschlaf*.

There is no sleep or even sleepiness and no loss of memory in nitrous oxide analgesia. The mother knows and understands everything, which is essential in obtaining her co-operation. The dressings are undisturbed, no one is needed to restrain her, nor are quiet rooms needed, or a corps of trained assistants to carry out the simple technic.

When the second stage is begun, or before, if the pains are causing the patient much discomfort, the method is explained to her in somewhat the following manner, emphasizing that her assistance and labour will be essential, and that she shall always watch closely for the first sign of each contraction, as the cue for beginning inhalations:—

Nitrous oxide is an odorless gas, which is capable of relieving pain when inhaled. Less than six inhalations does not produce sleep nor in the least impair memory, but will relieve the suffering of childbirth. More than six inhalations usually results in unconsciousness or anesthesia, such as is used in surgical operations, and is not desired, as a rule, in normal cases.

The dose required to relieve suffering depends upon the character of the pain and is regulated by the number of inhalations of nitrous oxide directed to be taken. There is this difference between nitrous oxide and other drugs or methods for the relief of pain, that nitrous oxide will produce analgesia in less than 10 seconds, while other drugs require many minutes to hours to afford the desired relief. Again, after stopping the inhalations of nitrous oxide and breathing air, it is eliminated through the lungs within a minute, while other drugs require hours. Herein lies the secret of success of nitrous oxide in its application to obstetrics. It is the only agent known which may be administered at the beginning of each uterine contraction, absorbed with sufficient speed to relieve the suffering and again eliminated from the body before the next contraction is due.

It is evident that, to obtain relief, it is necessary that the inhalations must be begun promptly when the first symptom of the oncoming pain has been experienced. Also, the inhalations must be taken deeply into the lungs and quickly expelled until the required number (normally three) have been inhaled. The last breath of nitrous oxide inhaled should be held as long as possible while bearing down powerfully, so as to get the full benefit of the gas; and, at the same time, while being relieved, to assist the uterus in expelling the child, making it slide a little every time.

As soon as air is again inhaled, the analgesia begins to rapidly fade away, and by the time the contraction is over the analgesia is practically gone.

Analgasia does *not* relieve the woman of labour, and is not intended to. It does relieve pain, which makes it possible to work the harder through expulsive efforts at making the child slide through the birth canal. In fact, unless the mother labours and co-operates the progress of labour will be no faster than without analgesia; but, with this assistance, birth will take place in about half the usual time and without the usual suffering.

The apparatus required for analgesia may be very simple, indeed, it may be so small and automatic that it may be conveniently carried to the home with enough gas in two small tanks all ready for use to last several hours. In normal cases a trained anesthetist is not required, since all that is needed is some one to apply the mask tightly over the nose and mouth while the patient inhales the number of breaths directed by the obstetrician, and then remove it. A large nitrous oxide-oxygen apparatus as ordinarily used for anesthesia may also be employed, although these often are not automatic and require experience in managing them.

There are different kinds of pains; some are slow in reaching their "peak," others are fast; some are weak and others are strong, but in the same patient, while the pains are somewhat variable from time to time, they usually retain about the same speed of onset. We are interested in the speed of onset and the duration of pains because we have to regulate our analgesia accordingly.

A fast pain requires fast analgesia. By diluting nitrous oxide with air its action is slowed, and the greater the dilution the slower the action. It is also weakened when more than 35 per cent. of air is mixed with it. So that a fast pain demands a purer or richer mixture of nitrous oxide (less air) to win the race with the pain than a slow one.

On the other hand, a fast analgesia used in a slow pain would be like the race of the hare and tortoise—the analgesia would fade away at about the climax of the pain.

Fortunately 10 per cent. of air fits most cases, and the others are easily controlled by changing the mixture one way or the other as the case may require.

When the head is to pass through the outlet it is usually best to administer about 10 inhalations, inducing anesthesia or unconsciousness, especially if there is danger of laceration, since analgesia will not relieve the pain of a perineal tear.

In delivering the placenta analgesia may again be used, while stitches should be placed during

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