COMBINED EVIPAN-NOVOCAIN ANÆSTHESIA
(Continued).

By George Bankoff, M.D.

Locally the evipan-sodium does not damage the veins, they remain patent even after a repetition of the administration. No investigator has found signs of cumulative action and many have used it repeatedly without ill-effects. Rode, for instance, has injected evipan-sodium three times in two days for bi-lateral mastoiditis with high fever, Beck and Sebening have injected it nine times in succession and neither intolerance nor venous thrombosis have been observed. Other chemical investigations regarding the concentration of blood sugar, the function of the liver, the composition of urine, etc., have demonstrated practically no alterations produced by the evipan-sodium. The alkaline reserve is practically unchanged and the evipan is as innocuous as the local avertin anaesthetics.

The condition of the patients, their sex or age have no importance in regard to the evipan-sodium. Klages gives a wonderful account of his experience on 84 children aged from 2 months to 14 years. He did not observe any ill-effects in them, which give a particular importance to the evipan-sodium as an anaesthetic for children.

Even patients in a very grave state of hysteria or nervousness support the drug very well and the psychological effect is good.

EVIPAN ANÆSTHESIA FOR MAJOR OPERATIONS.

The rapid disintegration of the drug followed by the prompt recovery of the patient stamped the evipan as an ideal anaesthetic for short and minor operations, such as opening of abscesses, biopsies, reduction of fractures or dislocations, etc. Furthermore, tonsillectomy, resection of the ribs for empyema and various cystoscopic and bronchoscopic, etc., examinations have been successfully carried
out under evipan anaesthesia. In a case of a bilateral inguinal hernia Abel and Jarman found themselves obliged to inject for a second time during the operation. Rode has performed nine laparotomies for tubal pregnancy and placenta praevia. Weese has administered this anaesthesia in 10,000 cases for short operations without any fatal results, or alarm caused directly by the anaesthetic.

In the field of major surgery it seems that only A. Westerborn has employed the evipan-sodium as an anaesthetic. He began his experiments with this anaesthetic by using it for the beginning of the operation only, completing it with additional ether. Later on he carried out the major operations completely under evipan anaesthesia. This investigation found that patients react very differently to the drug, and therefore instead of establishing a scale of maximal doses on age, sex and body weight, etc., he prefers that the necessary dose to induce loss of consciousness should be the deciding factor in each individual case. An equal quantity of this dose is injected as soon as consciousness is lost, which should be sufficient to induce an anaesthesia lasting for about 20 minutes. The patient is kept continuously under complete anaesthesia during the whole period of the operation, by injecting periodically 1-2 c.c.m. of the solution whenever the patient shows signs of recovery. The amount of the solution is very variable, being greater in young patients. On the other hand, the debilitated require much less of the solution then those in robust health.

The results among 450 patients were excellent, not one death was recorded, a few of them were restless and excited during their recovery, some being so violent that they had to be forcibly kept still.

**Personal Technique.**

In order to avoid injecting large amounts of evipan-sodium solution, which although experimentally on animals did not show any particular ill-effect, and also taking into consideration that the evipan-sodium acts differently in many individuals, I have tried to modify the use of evipan in such a manner that it will be unnecessary to inject large
quantities, at the same time keeping the method reliable and certain.

The largest dose used at the present time by Westerborn has never exceeded 27 cc. of evipan-sodium solution. In some cases it was impossible to bring the patients into complete anaesthesia, for this reason it was necessary to give them additional ether or chloroform.

For these and other reasons my method intends to limit to a minimum the use of evipan, at the same time offering the best condition in which a surgical intervention should take place.

By combining the intravenous injection of 5-15 cc. of evipan-sodium solution with regional infiltration or blocking the sensitive nerves of the operative field, I have been able to bring the patient to an ideal condition, which I have never witnessed during my experience with all other types of anaesthesia. The procedure employed is as follows: The patient is prepared as usual one hour before the operation, and given hypodermically a combined injection of morphia and scopolamine in the proportion of ¼ grain to 100 grains. In the majority of cases this injection produces a condition of twilight sleep. The infiltration of the operative field is performed with one of the many procedures of local anaesthesia. In particular operations when blocking of the sensitive nerves is possible, preference should be given to this method. Soon after the local infiltration and blocking is complete, the patient is given intravenously 5-10 cc. of evipan-sodium solution, thus bringing him to a most ideal condition of relaxation and anaesthesia. The intestines and all other abdominal organs are paralysed, and any surgical intervention may proceed easily. The duration of this anaesthesia is variable in different patients, but always varies between 1-2 hours, thus offering the possibility of performing any type of operation.

When dealing with a very nervous hysterical patient it is advisable to inject first the evipan-sodium solution intravenously, followed by the local infiltration or blocking of the operative field; in this way no psychological ill-effect can arise.

Without describing further all the advantages of this anaesthesia, I should like to mention that this type offers to
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me the most ideal condition I have ever witnessed. It could be employed for every type of patient; age, sex or different pathological conditions do not alter in any way the success of the anaesthesia itself, no morbid condition is present which could be taken as contra-indication.

Practically all my operations are performed under this combined evipan-novocain anaesthesia, and I have never had any fatal results and sincerely advise systematical use of this method which dispenses with all disadvantages of the other methods of anaesthesia.

LITERATURE.