I apologize for being so unscientific and for having stated so many unproven opinions, but I believe that the study of allergy in connexion with our specialty is still in its infancy, and that several aural conditions, which are now tentatively supposed in some cases to be partly allergic, will in the future be definitely established as such. Out of my ignorance of the subject I fear I have been provocative to those who know more. My only hope is that I may have stimulated the more knowledgeable to a good discussion from which some of us may learn something for the future.

REFERENCES

- ¹ Van Leeuwen, W. Storm: *Allergic Diseases*.
² Idem: *Ibid*.
³ Doerr: *Handbuch der pathogenen Mikroorganismen*, Band 2, p. 947.

THE ADVANTAGES OF INTRAVENOUS (EVIPAN) ANAESTHESIA IN OPHTHALMIC SURGERY

BY

T. KEITH LYLE, M.B., M.Ch.CANTAB.,
 M.R.C.P.LOND., F.R.C.S.ENG.

SENIOR RESIDENT MEDICAL OFFICER, ROYAL WESTMINSTER OPHTHALMIC HOSPITAL

AND

F. G. FENTON, M.B., B.S.MELB.

JUNIOR RESIDENT MEDICAL OFFICER, ROYAL WESTMINSTER OPHTHALMIC HOSPITAL

Although intravenous anaesthesia with evipan is used on quite a large scale in many hospitals to-day for various types of cases it is perhaps not fully realized that it is of particular value in ophthalmic surgery. This article is designed not to introduce the authors as authorities on evipan anaesthesia, but to set down their experiences with a small series of some eighty-six cases at the Royal Westminster Ophthalmic Hospital and their conclusions therefrom, as we feel certain that our findings may be of interest and of practical value to many persons engaged in ophthalmic practice who may not have used this type of anaesthesia in their operative work.

As only a minority of ophthalmic operations are performed under general anaesthesia our series is necessarily small, but so superior have been our results with evipan in comparison with other forms of general anaesthesia in our operative work at this hospital, both from the ease and speed of induction, the saving of time, the simplicity of apparatus, the optimum conditions for the surgeon, patient, and anaesthetist, and the apparent great margin of safety, that we have adopted evipan as the routine anaesthetic for practically all cases requiring general anaesthesia. In every case in our series evipan gave more or less complete satisfaction to the surgeon, and we have not had any worry, from the anaesthetist's point of view, in any patient. Our observations will be presented under the following headings: technique of injection, dosage, etc.; general advantages of evipan; special advantages in ophthalmic surgery; and an analysis of our series.

Technique of Injection, Dosage, etc.

With a little experience the optimum dosage can be very accurately calculated after a rapid consideration of the length of anaesthesia required, of the patient's approximate body weight and age, and whether of a robust, frail, or toxic constitution. Our dosage varied from 4.5 c.cm.* in the case of old toxic patients to a full 10 c.cm. in strong, healthy adults. In a few of the latter we found it necessary to give as much as 12 c.cm. to

produce the requisite degree of relaxation. Healthy children required a relatively much larger dose than adults, a healthy average child of 4 years taking 5 c.cm., while children of 10 years and upwards generally required a full 10 c.cm. Old, feeble persons required very little more than 4 c.cm.

Having roughly estimated the required dosage for the individual case, a 10 c.cm. syringe is fully charged with a previously mixed solution of evipan, and the needle introduced into a vein in the arm, the patient being instructed to count slowly aloud. When consciousness is lost, as indicated by the cessation of counting, the amount already injected is noted and the injection continued until as much again has been given, in accordance with the practice of the German school. The needle is kept in the vein, and the surgeon then grasps the conjunctiva with forceps. If the dosage is insufficient, as indicated by movements of the patient's limbs, a small additional injection is made until the patient relaxes, the anaesthetist being careful not to exceed his original estimated dose by more than 1 to 2 c.cm. unless the movements of the patient indicate a further dosage. After consciousness is lost the jaw is kept supported to keep a clear airway. *No preliminary medication is required or should be given.*

Carbon dioxide and oxygen for inhalation is kept at hand in case of respiratory failure, but we have not found the use of this emergency treatment necessary in any of our cases. In many of the older cases a severe sneezing reflex, several times repeated, occurs during early manipulations of the conjunctiva. This does not, however, seriously interfere with the course of the operation. A delay of one or two minutes before commencing the operation frequently eliminates this phenomenon. It has not occurred in any of the children in the series. With children, the arm must be kept rigid during the injection, as otherwise the needle may be dislodged by a sudden movement as the patient loses consciousness.

In the average case under the above technique the duration of anaesthesia suitable for ophthalmic surgery is from fifteen to twenty-five minutes. In very short operations a reduced dosage is given, and when more prolonged anaesthesia is required a further injection may be given when the effects of the original dose show signs of wearing off. This appears to act very satisfactorily. Our longest case was on the operating table for one hour and fifteen minutes, during which time a total of 14.5 c.cm. was given in two separate injections, the anaesthesia being satisfactory throughout.

General Advantages of Evipan

Evipan may be given with safety to patients of any age, provided a very small palpable vein can be found. We had no difficulty in this respect even in very young children. The youngest patient in our series was 4 years of age and the oldest 85.

The contraindications are very few—mainly severe disease of the liver and of the kidneys—and it appears to be safe to use the method even in severe diseases of the cardiovascular and respiratory systems, where inhalation anaesthesia may involve grave risks. The induction is very rapid. The material is inexpensive, requires an absolute minimum of apparatus, and does not need any special skill on the part of the anaesthetist. The period of recovery is very rapid, several of our cases being able to talk rationally within fifteen minutes of leaving the operating table. In the majority of our cases there were practically no after-effects attributable to the anaesthetic. The adult patients were in all cases very pleased with the anaesthesia.

In this connexion it is interesting to note that one of the authors had an evipan injection for the removal of some teeth, having previously at one time or another taken most

* Strength of solution is 1 gram of sodium evipan per 10 c.cm. of distilled water.

inhalation anaesthetics. He considers evipan far superior to anything he has previously experienced.

In the stress of circumstances it is possible for a surgeon to give the anaesthetic and carry on the operation with a minimum of nursing assistance and practically no danger to the patient. Evipan may be given without danger with a partially full stomach. Owing to the great rapidity of induction, the total time required for an operation is very materially reduced, especially with several consecutive short operations.

Special Advantages in Ophthalmic Surgery

The whole of the face and head is left free for the surgeon, which is a considerable help in eye operations. As most ophthalmic operations are of short duration, a single evipan injection is peculiarly suitable to most such. We have found it very suitable for cases of squint in children, for excisions and eviscerations of the eyeball, for acute glaucoma, plastic operations—in short, for practically all eye operations *where a general anaesthetic is advisable*.

Under evipan anaesthesia the intraocular tension falls, both in eyes with normal tension and in those with raised tension. This was demonstrated in selected cases in our series by palpation and by the use of the Schiotz tonometer. This is a very advantageous factor in operations for acute glaucomatous conditions. In a considerable number of ophthalmic operations the subjects are old, enfeebled persons, perhaps suffering from diabetes, tuberculosis, or other constitutional diseases, in whom inhalation anaesthesia frequently involves grave risks. In the majority of these cases evipan may be given with safety, with every satisfaction to the patient and surgeon alike.

Analysis of Our Series, with Comments

1. *Excision of Eyeball*.—Evipan is ideal for this operation, and we have now adopted it as the routine method of anaesthesia. Thirty-nine operations were done, the age of the patients varying from 30 to 85 years. Particular mention should be made of the advantages over inhalation or local anaesthesia in the following cases:

(a) I. B., male, aged 58 years, an advanced case of Graves' disease with chronic iridocyclitis from corneal ulceration, due to severe proptosis.

(b) A. S., male, aged 66 years, severe arteriosclerotic and hypertic, with recent hemiplegia and mental changes.

(c) W. J., male, aged 72 years, very feeble patient with myocardial degeneration and chronic bronchitis.

In all these cases anaesthesia was most satisfactory, and there were no untoward after-effects. Another patient, M. P., male, aged 65 years, was feeble and cachectic, and clinically his liver contained large masses of secondary growth. He was given evipan for removal of a secondary glaucomatous and painful eye, the seat of a primary malignant melanotic tumour. No ill effect followed, although it is said that severe liver disease is a contraindication to the use of evipan.

2. *Evisceration of Eyeball*.—Nine cases, age of patients varying from 9 to 75 years.

3. *Operations for Glaucoma*.—Six cases, consisting of four trephines, one Lagrange's operation, and one posterior sclerotomy. The only difficulty here, as in any general anaesthetic, is the tendency of the eyeball to roll upwards, although this tendency is much less noticeable with evipan than with inhalation anaesthesia. We have found that the intraocular tension is always lowered; this is easily demonstrable by palpation, and we have shown it conclusively by the Schiotz tonometer to be reduced by as much as 10 mm. in some cases.

4. *Lid Operations and Plastic Operations on Sockets*.—Eight cases. The great advantage here is that distortion of the eyelids with local injection fluid is avoided. One case, J. W., male, aged 66 years, underwent a successful operation for paralytic ectropion (due to facial palsy complicating middle-ear disease), fascia lata strips being taken from the thigh and used as slings. The operation lasted one and a quarter hours, and anaesthesia was satisfactory throughout, the total

amount injected being 14.5 c.cm. (given in two successive injections). Another case worthy of mention was H. S., male, aged 43 years, suffering from fibroid phthisis, who underwent a "plastic operation on socket" with good result.

5. *Squint*.—Twenty cases, consisting of eighteen "tenotomies and advancements" and two tenotomies. In one case, a nervous female aged 18 years, operation was commenced under local anaesthesia, but the patient was unable to keep still, and so an injection of evipan was given immediately, and the operation proceeded with satisfactorily. Inhalation anaesthesia would have been impossible owing to the fact that the patient had recently had a meal. Evipan has not been used very considerably for squint, because for obvious reasons local anaesthesia is to be preferred when the patient is sufficiently old to exercise self-control.

6. *Attempt to Remove Deep Intraocular Foreign Body*.—One case; satisfactory anaesthesia.

7. *Opening of Lachrymal Abscess*.—Three cases.

Summary

1. The advantages of intravenous anaesthesia with evipan in ophthalmic surgery are shown.

2. A series of eighty-six cases is presented, showing very satisfactory results with no complications.

We are indebted to the members of the honorary staff of the Royal Westminster Ophthalmic Hospital for their kind co-operation in the use of evipan for their cases.

CHORIONIC CARCINOMA

WITH A REPORT OF A CASE FOLLOWING RUPTURED TUBAL GESTATION

BY

RUFUS C. THOMAS, F.R.C.S.ED., M.C.O.G.

Cases of chorionic carcinoma are always of sufficient interest and rarity to merit publication. According to DeLee¹ "hydatidiform mole preceded the development of this disease in 33 to 40 per cent. of reported cases." Again, Eden and Lockyer² state that "in two out of every three cases the immediately preceding pregnancy terminated in abortion." Both the above statements presumably refer to uterine pregnancies. The urgent symptom would therefore be uterine haemorrhage, and the fact that it was preceded by an abortion, either of the ordinary type or more especially of a hydatid mole, would tend to put one on guard. Chorion, wherever situated, may, however, be liable to malignant degeneration. DeLee¹ states that "ectopic gestation may undergo this [hydatidiform] degeneration." Tubal and ovarian pregnancies must therefore share in the general danger.

Chorionic Carcinoma of Tube or Ovary

The clinical picture of a malignant degeneration of a chorion situated in the ovary or tube is nevertheless very different from that of the uterine variety. Such cases must be very rare indeed, and, occurring as they do without the usual symptoms of the uterine type, coupled with the fact that the growth is hidden away in the abdominal cavity, must give rise to much confusion in diagnosis. There is not always uterine bleeding to warn the patient that something is wrong. Advice would tend to be sought late, thus giving further time for the condition to develop. Pain in the abdomen or the presence of a tumour in the lower abdomen following an operation for ectopic pregnancy would be the probable reason for seeking advice.

The literature yields the following information. Risel³ collected eleven cases of primary chorio-epithelioma of the tube, and reports a case of chorio-epithelioma developing in the pelvis, proved at subsequent operation two