Diazepam premedication in ophthalmic surgery

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Local anaesthesia offers many advantages to the surgeon working in a hospital where skilled anaesthetists and nurses are in short supply. Even where such facilities are adequate local anaesthesia avoids the almost inevitable delay between cases required by the administration of a general anaesthetic, and it may also be less dangerous to the frail or elderly patient.

The ideal ophthalmic anaesthetic should meet the following requirements:

- (a) To provide the maximum tranquillizing effect without making the patient too drowsy to co-operate;
- (b) To reduce extraocular muscle tone to keep the eye stationary during surgery;
- (c) To lower intraocular pressure;
- (d) To provide adequate analgesia;
- (e) Not to cause vomiting;
- (f) Not to affect blood pressure or respiration.

Diazepam (Valium), which meets most of the above requirements extremely well, is a tranquillizer of the benzodiazepine class, causing muscle relaxation and reduction of skeletal muscle tone (Randall, Heise, Schallek, Bagdon, Banziger, Boris, Mol, and Abrams, 1961). This action appears to be mediated through the central nervous system, for it can be shown that the stimulation of muscle through the motor nerve is unaffected. Animal experiments have shown that the respiratory centre and blood pressure are not affected (Parkes, 1967).

The pharmacological action of reducing the muscle tone is very advantageous in ophthalmic surgery, since reduction in extraocular muscle tone lowers the intraocular pressure (Colle, Duke-Elder, and Duke-Elder, 1931). Bruha (1964) measured the intraocular pressure in a series of patients before and after the administration of Diazepam, and in most cases in which the pressure was raised, there was a reduction to normal. Similar results were reported by Campan and Espagno (1966).

Present Investigations

Fifty unselected patients (26 men and 24 women) were operated upon for various ophthalmic conditions, using Diazepam 20 mg. intramuscularly one hour before operation as the sole premedication. Procaine hydrochloride (2 per cent.) was used for retrobulbar and facial nerve blocks.

The blood pressure was measured on admission and just before and after operation, and the respiration was observed during and after operation. Seven patients were emaciated and in a poor

nutritional state. The operations carried out are shown in Table I, and the tribal and age groups in Table II. The tribal breakdown is important in Kenya as the nomadic tribes (Masai) are much less co-operative during surgery under local anaesthesia.

Table I *Operations performed in fifty cases*

Operation	No. of cases
Lens extraction	44
Glaucoma operation	4
Other	2
Total	50

Table II *Tribe and age groups of fifty patients*

Tribe	Age group (yrs)							Total cases
	30-39	40-49	50-59	60-69	70-79	80-89	90-100	
Kikuyu	1	4	4	15	6	—	—	30
Masai	—	2	—	2	2	—	—	6
Meru	1	—	—	—	—	—	—	1
Mkamba	1	1	—	4	1	—	2	9
Mluhya	1	—	—	—	1	—	—	2
Muhya	—	—	1	—	—	—	—	1
Taveta	—	—	1	—	—	—	—	1
Total	4	7	6	21	10	0	2	50

Each patient's co-operative ability was noted before, during, and after operation. Any patient who persisted in bringing his hands up to his eyes or who did not lie still during the operation was termed 'unco-operative', as were those who would not lie still in bed or were mentally confused postoperatively.

Observations

Premedication with Diazepam was found to be highly satisfactory in the majority of cases, and there were no untoward side-effects.

BLOOD PRESSURE

This was unchanged in the majority, although a fall in systolic blood pressure of from 10 to 25 per cent. has been reported (Bruha, 1964).

RESPIRATION

This was unaffected and oxygen administration was not considered necessary.

CO-OPERATIVE ABILITY

This was satisfactory in 48 cases (Table III). Only two patients were unco-operative during surgery, both of them members of the nomadic Masai tribe. The problem was later successfully solved by supplementing the Diazepam with an intramuscular injection of 50 mg. pethidine one hour before the operation.

Table III *Co-operative ability*

<i>Time</i>	<i>Co-operative</i>	<i>Unco-operative</i>
Before operation	50	Nil
During operation	48	2 (both Masai)
After operation	50	Nil

A striking observation was that the patients who were given Diazepam alone were easily aroused and were fully co-operative and alert after surgery. This was a great advantage, as the need for post operative nursing care was minimal.

The majority of patients were able to get up out of bed the day after the operation. The muscular weakness reported by Bruha (1964) in some of his cases was not observed. Diazepam (20 mg.) was completely harmless in the poorly-nourished patients and in two patients over 90 years old. There was no nausea or vomiting and no vitreous loss.

Summary

- (1) Fifty African patients undergoing intraocular surgery were given a single dose of 20 mg. Diazepam (Valium) one hour before operation, as the sole premedication.
- (2) This was found to be highly satisfactory in all but two cases (4 per cent.). Excellent tranquillization was combined with good patient co-operation.
- (3) The reduction in muscle tone and the associated fall in intraocular pressure provided by Diazepam premedication were considered to be valuable factors.
- (4) The early ambulation and minimal nursing care required were of great advantage to both patients and hospital staff.
- (5) Diazepam had no untoward effects on the poorly nourished or the very old.

I wish to thank Dr. G. G. Bisley, consultant ophthalmologist at the Kenyatta National Hospital, for his help and encouragement in writing this paper, the Director of Medical Services for permission to publish this paper, and Messrs. Roche Ltd. for supplying the Valium used in this trial.

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