Arch. Soc. Amer. Oftal. Optom. (1983)-17-97

IMURAN IN PENETRATING KERATOPLASTIES*

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Azathioprine (IMURAN) is an antimetabolite, derived from 6-Mercaptopurine. Along the experiments performed with this drug, it was found that the advantage it has over 6-MP is that it causes less depression on the bone marrow, with the same or even greater therapeutic action. The dosage recommended is 1-3mg/kg/day.

In the period between 1965 and 1967, a series of articles were published by several authors, among them H. Leibowitz & J. Elliot and F. Polack, on experimental work on animals, using Imuran in corneal grafts.

Since 1973, Imuran is being used in the Instituto Barraquer de América, for the treatment of corneal graft rejections. This paper is based on the study of the clinical records of penetrating keratoplasties performed in this Institution, over a period of 3 years (1973-74-75). The study shows that during that period of time 304 penetrating corneal grafts were performed, using, in all cases, the same surgical technique and the same suturing material (nylon monofilament). The grafts were performed by only two surgeons.

From the group of 304 penetrating keratoplasties, 80 cases received Imuran; some with prophylactic purposes only, but most as treatment for rejection. In all of these cases, Imuran was administered associated to local and systemic corticoids, with a weekly blood counting. The dosage administered was 0.5-1.5mg/kg/day.

Needless to say, the cases in which Imuran was used were those that implied a "high risk" of graft rejection. These included 35 cases (43.75%) of corneal ulcers

* This paper was presented at the meeting of the Horacio Ferrer, Eye Institute, Miami, Nov/82.

or leucomas of different ethiology, with severe corneal compromise, 19 cases (23.75%) of keratoconus associated to another pathology, 14 cases (17.50%) of regrafting and 12 cases (15.00%) of primary or secondary corneal dystrophies. (Fig. 1).

PATHOLOGY

	Nº CASES	%
1. — CORNEAL ULCERS AND LEUCOMAS	35	43.75
2. — KERATOCONUS	19	23.75
3. — REGRAFTING	14	17.50
4. — CORNEAL DYSTROPHIES PRIMARY OR SECONDARY	12	15.00
TOTAL	80	100.00

FIGURE 1

Distribution of pathology of the 80 cases treated.

In 63.75% of cases the grafts were 8.0 mm in diameter and in 26.25% they were 7.5 mm in diameter.

Although the duration of the treatment varied in all cases, the antimetabolite continued being administered even after the graft had become transparent, in order to assure greater stability. For this reason, 76.50% of patients received Imuran for an average period of 5 months (1-8 months). (Fig. 2).

Rejection occurred in only 14 of the 80 cases of the study (17.50%).

In order to evaluate the therapeutic action of Imuran, from the group of 304 corneal grafts we chose cases with only one episode of rejection in the life of the graft that ended either in perfect transparency or permanent rejection. Thus, we found 17 cases treated with Imuran plus corticoids and 17 cases treated only with corticoids.

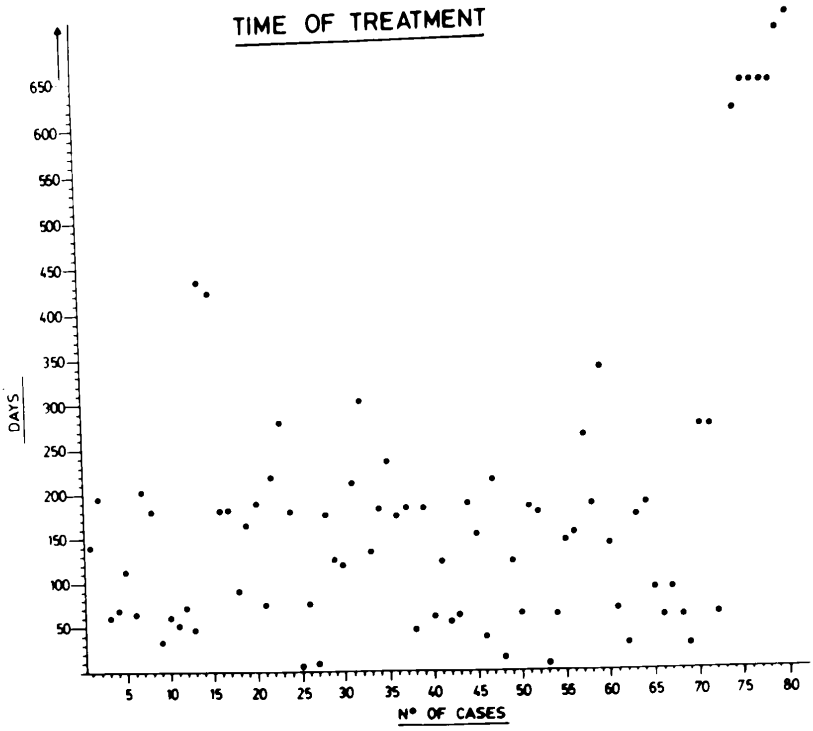

FIGURE 2

The dense portion shows that 232 cases (76.50%) received Imuran during a period of time between 30 and 250 days (1-8 months).

The corneal pathology of the 17 cases of the group of Imuran plus corticoids (Fig. 3) was 8 cases of leucoma (47.05%), 6 cases of keratoconus (35.29%) and 3 cases of secondary endothelial dystrophy (17.66%). In the group of 17 patients treated with corticoids alone, there were 8 leucomas (47.05%), 8 keratoconus (47.05%) and 1 primary corneal dystrophy (5.90%). The treatment received by this second group was based on local corticoids (topic and subtenonian) and systemic corticoids Triamcinolona, 16 mg/day).

The most interesting findings of this comparison were that in the group of corticoids there were five permanent rejections, while in the group of Imuran-corticoids there were only two permanent rejections. (Fig. 4), and that the average time needed by the graft to recover total transparency was 85.17 days in the group of corticoids, while in the group of Imuran-corticoids it was 49.70 days. (Fig. 5).

PATHOLOGY	IMURAN + CORTICOIDS		CORTICOIDS	
	N° CASES	%	N° CASES	%
1. — LEUCOMAS	8	47.05	8	47.05
2. — KERATOCONUS	6	35.29	8	47.05
3. — DYSTROPHIES 2°	3	17. 66	——	——
4. — DYSTROPHIES 1°	——	——	1	5.90
TOTAL	17	100.00	17	100.00

FIGURE 3

Distribution of pathology in the two groups of patients analized to determine therapeutic action of Imuran.

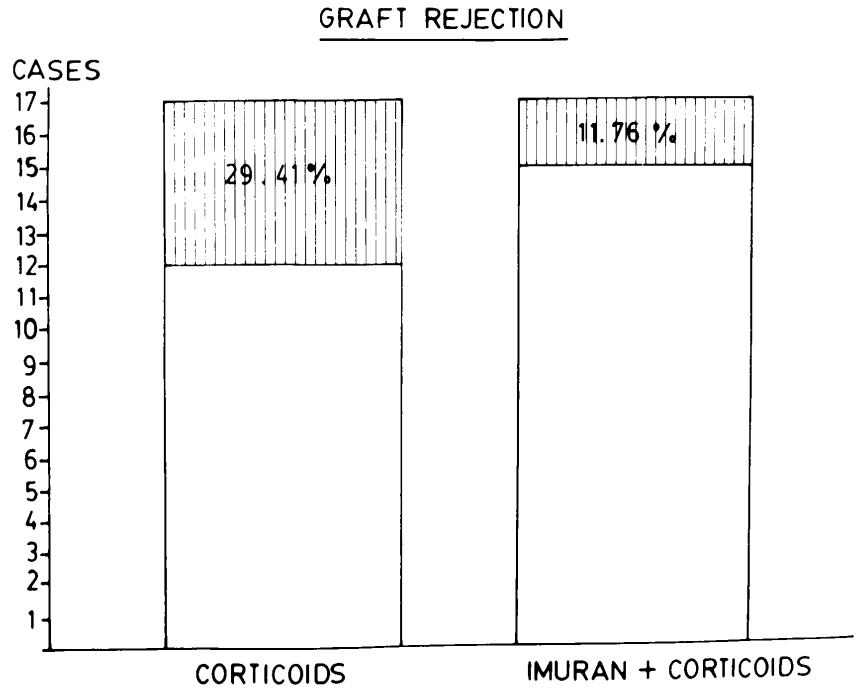

FIGURE 4

In the group of graft rejections, 2 cases treated with Imuran + corticoids became permanent cloudy corneas, against 5 cases treated with corticoids only.

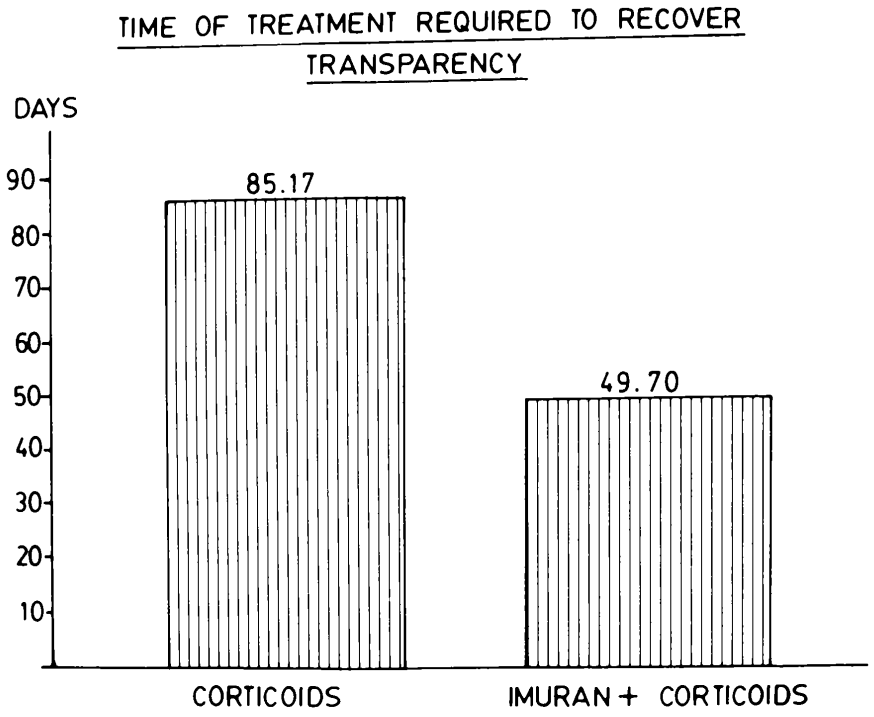

FIGURE 5

Using Imuran + corticoids, the graft rejections were controlled, obtaining clear grafts in half the time needed to obtain the same effect with corticoids only.

AFTER EFFECTS

The only after-effect observed was a slight leucopenia with plaquetopenia. However, it improved easily and returned to normal values by merely reducing the dosage of the antimetabolite.

COMPLICATIONS

In the course of the 9 years since we began administering Imuran, we have not found any complications associated to the drug itself.

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