Computer registration of uveitis patients

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Abstract. An analysis was made of 1309 patients with uveitis seen at University Hospitals participating in the Uveitis Centre of the Netherlands Ophthalmic Research Institute. In this series B27-associated anterior uveitis was the most frequent entity (18%) followed by Toxoplasma chorioretinitis (7%). Sarcoid uveitis, pars planitis and Fuchs' heterochromic cyclitis each accounted for approximately 4–5% of cases. In 44% of the patients no specific diagnosis could be made. Central diagnosis registration is of great importance when conducting clinical uveitis research.

Introduction

Uveitis encompasses a great number of distinct diseases (Smith and Nozik, 1983). It may be caused by bacterial (tuberculosis, leprosy, syphilis), viral (herpes, cytomegalovirus), fungal (Candida, histoplasmosis), protozoa (Toxoplasma gondii) or helminthic (Onchocerca) infections. On the other hand uveitis may be a symptom of generalized diseases such as ankylosing spondylitis, Behçet's disease, sarcoidosis, juvenile rheumatoid arthritis or multiple sclerosis. In a number of diseases the symptoms are confined to the eye. These entities include Fuchs' heterochromic cyclitis, sympathetic ophthalmia and phacogenic uveitis.

The incidence of uveitis entities has been studied in a number of countries (Perkins and Folk, 1984; Vadot et al., 1984; Henderly et al., 1987) but has not previously been extensively studied in the Netherlands.

The activities of the Uveitis Centre coordinated by the Netherlands Ophthalmic Research Institute include the organisation of diagnosis registration of various uveitis entities.

In this report the results during the time period between 1981 and 1986 are presented.

Table 1. Central uveitis registration.

	Number of patients
UVA	556
EUR	345
VU	291
RUL	109
Others	8
Total:	1309

Procedure

Since 1981 all uveitis patients attending the University Hospitals of Rotterdam (EUR) and Amsterdam (VU and UvA) have been investigated for a number of immunologic and other laboratory parameters. The data of these patients have been stored in a computer data bank.

After this study was completed (Feltkamp et al., 1983; Kijlstra et al., 1984) the registration of uveitis patients was continued and patients from the University Hospitals of Leiden (RUL) and Groningen were also registered. Registration was performed by means of the HP1000 computer configuration with the HP software programme IMAGE combined with software devised by the department of Visual System Analysis (Ir. W.G. van Veenendaal).

Results

Registration of uveitis patients from a number of academic centres resulted in the distribution of patients as seen in Table 1. A total number of 1309 patients was analysed.

The main uveitis entities encountered are shown in Table 2. B27-associated anterior uveitis encompasses the largest group of patients (18%) seen in the participating centers, followed by *Toxoplasma chorioretinitis* (7%). Other main entities are sarcoid uveitis, Fuchs' heterochromic cyclitis and Pars planitis each accounting for 4–5% of cases. In 44% of all cases no specific diagnosis could be made.

Marked differences were found in the frequencies of a number of uveitis entities between the participating centres (Table 3). This is partly due to the referral of a number of these patients to specialised centres. A good example is birdshot chorioretinopathy; these patients are often referred to the Department of Ophthalmology in Leiden or the Uveitis Centre in Rotterdam (EUR).

Table 2. Central uveitis registration. Frequency of a number of selected entities*.

	Number of patients	% of total
B27 ⁺ anterior uveitis	229	18
Toxoplasma	97	7
Sarcoid	63	5
Fuchs'	51	5
Pars planitis	55	4
Viral	32	2
Behçet	10	0.8
Birdshot	21	1.6
Reiter	14	1.1
Juvenile rheumatoid arthritis	6	0.5
Syphilis	9	0.7
Tuberculosis	23	1.8
Sympathetic ophthalmia	7	0.5
Unknown	578	44

*a number of smaller entities are not listed in the table.

Discussion

Registration of the uveitis entities seen in a number of Dutch University clinics shows that uveitis is frequently associated with certain systemic diseases. Especially B27-positive anterior uveitis, which can now be considered as a distinct entity (Rothova et al., 1987), represents almost 20% of all patients. Sarcoid uveitis is also a very frequent disease entity, responsible for 5% of all patients. Of the "infectious" entities it is apparent that the protozoan parasite *Toxoplasma gondii* is still an important cause of ocular disease in the Netherlands (Loewer-Sieger et al., 1984).

Syphilis and tuberculosis, which were regarded as the main causes of uveitis in the first half of this century, are now responsible for only 2.5% of all cases.

The pattern of uveitis seen in the Dutch population is similar to that reported earlier by Perkins and Folk (1984). Compared to the studies of

Table 3. Central uveitis registration. Frequency of entities in different centres.

	% of total			
	RUL	VU	UvA	EUR
B27 ⁺ anterior uveitis	22	18	16	12
Toxoplasma	7	5	8	8
Sarcoid	3	2	7	3
Fuchs'	2	1	6	3
Birdshot	5	0.3	0	3

Henderly et al. (1987) our group included significantly more HLA-B27 positive patients.

Pooling of patient data, combined with the storage of serum samples, has enabled us to evaluate a number of different diagnostic tests in uveitis, such as Toxoplasma serology (Rothova et al., 1986), ACE and lysozyme testing in sarcoidosis (Baarsma et al., 1987) and HLA-B27 and HLA-A29 typing (Rothova et al., 1987; Linssen et al., 1986; Baarsma et al., 1986). Furthermore it has enabled us to study the incidence of autoimmune reactions against corneal and retinal antigens in uveitis (Doekes et al., 1987; Kruit et al., 1986). The registration has also provided a means of evaluating certain therapeutic regimens in a number of uveitis entities.

A major concern in disease registration is of course the selection of patients. Most of the academic centres involved in the studies described here are referral centres and see the more serious uveitis patients. Despite these shortcomings the registration of uveitis patients has been of tremendous help in carrying out various research projects which may ultimately lead to an optimal management of uveitis.

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