Some characteristics of patients given dental treatment under general anesthesia

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Grytten J, Holst D, Dyrberg L, Fæhn O. Some characteristics of patients given dental treatment under general anesthesia. Acta Odontol Scand 1989;47:1-5. Oslo. ISSN 0001-6357.

The attitude to treatment of dental diseases under general anesthesia has been rather restricted in the dental profession in Scandinavia. Yet, some patients with certain medical conditions and patients haunted by anxiety may not be able to have conventional dental treatment. During the period 1975–1983, 1067 patients were treated in a group practice in Oslo. These patients are described with regard to gender, age, reasons for treatment, place of residence, source of referral, and type of treatment given. Some of the data are related to the year of treatment. The profile of patients changed during the observation period. At the beginning most of the patients came from Oslo and were less than 6 years old, whereas at the end most of the patients were more than 15 years old, lived outside Oslo, and had more conservative than radical treatment. It is concluded that there will probably always be a small group for whom dental treatment under general anesthesia will be necessary. □ *Dental anxiety; general anesthesia*

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Though available in both the public and the private sector, professional dental treatment is in practice inaccessible to some patients. Physical handicaps and mental disorders may produce barriers to regular dental care. In addition, for some patients, dental anxiety is a major reason for refusing conventional dental treatment. One way of helping these patients is to offer dental treatment under general anesthesia. A better understanding of the situation of these patients can be produced by describing their characteristics. Therefore, the aim of this paper was to describe patients treated under general anesthesia with regard to age, reasons for treatment under general anesthesia, place of residence, source of referral, and type of treatment given. It was assumed that both an accumulated dental treatment need before 1975 and a general improvement in dental health during the registration period would influence the treatment patterns. Therefore, the variation in the variables examined will be described by year of treatment. In a previous paper the duration of the treatment and age-specific treatment profiles were presented (4).

Although the participants to be described are not a random sample of all dental patients treated under general anesthesia, the relatively great number of patients and the systematic reporting justified internal analysis and presentation of the material.

Materials and methods

All the patients given dental treatment under general anesthesia in a private group practice from 1975 to 1983, altogether 1067 patients, were included in the analysis. Information about age, reasons why dental treatment under general anesthesia was needed, place of residence, source of referral, and type of treatment given were registered by the dentist on a precoded questionnaire after each visit. Because of lack of information on some variables, the total number of individuals varies slightly in the different tables.

The patients were examined by a physician before dental treatment was given, to ensure that no medical contraindications for general anesthesia existed. The patients also underwent a dental examination beforehand, to

assess their treatment needs and prepare a treatment plan. The general anesthesia was given by an anesthesiologist. No premedication was given, and intubation was routinely performed. No serious complications were registered; only minor problems such as nausea and weakness were registered by some patients. A few adults who had undergone time-consuming treatment were on sick leave for a few days after the treatment.

Data were analyzed by using the program package DDPP (Discrete Data Programme Package). Most of the results are presented in contingency tables. However, as has been reported earlier (4), the treatment profile was related both to age and to place of residence. As will be shown below, both age distribution and place of residence varied with year of treatment. The effect of these two variables was controlled for when the results were related to year of treatment. Multiple Classification Analysis (1), which provides adjusted estimates of dependent variables, was used to check for the effect of these variables. Thus, for example, when the average number of treatments was related to year of treatment, the age of the patient was also included in the analysis as a control variable. As a consequence, any change in age distribution between the various treatment years which would have affected the treatment variable is eliminated.

Results

Forty-eight per cent of the patients were male, and 52% were female. Children aged 0–6 years made up 44% of the patients during the whole period (Table 1). School-children aged 7–15 years represented 14%, and those above 15 years and ranging up to 74 years represented 42%. During the period 1975–1983, a shift in the age distribution took place. Thus, the proportion of children aged 0–6 years decreased from 66% in 1975 to 31% in 1983, whereas the proportion aged 15 years and older increased from 24% to 52% during the same period.

In all age groups the major reason for dental treatment under general anesthesia was dental anxiety (Table 2). Patients with special medical problems that made this type of treatment necessary represented 14% of the total group. The distribution showed little variation with year of treatment.

Forty-two per cent of the patients lived in Oslo, and 58% were living outside (Table 3). For 9% of the patients this information was missing. The proportion of patients from Oslo decreased from 60% in 1975 to 22% in 1983. These results are controlled for a change in age structure during the same period.

The major sources for referral of patients were dentists and institutions—41% and 13%, respectively. Thirty-five per cent of the

Table 1. The percentage distribution of patients by year of treatment and age

Year	*n*	Age, years 0–6	7–14	15–74
1975	96	66	10	24
1976	110	55	13	32
1977	116	50	21	29
1978	118	47	14	39
1979	146	45	19	36
1980	139	35	12	53
1981	117	41	9	50
1982	106	31	13	56
1983	119	31	17	52
Total	1067	44	14	42

Table 2. The percentage distribution of patients by year of treatment and reason for treatment

Year	*n*	Reason* Dental anxiety	Medical reason
1975	91	69	31
1976	100	81	19
1977	93	82	18
1978	106	82	18
1979	116	85	15
1980	120	87	13
1981	100	89	11
1982	97	92	8
1983	113	84	16
Total	936	86	14

* Checked for change in age structure.

Table 3. Percentage distribution of patients by year of treatment and place of residence

Year	*n*	Place of residence*	
		Outside Oslo	Oslo
1975	58	40	60
1976	72	36	64
1977	113	57	43
1978	114	62	38
1979	140	74	26
1980	137	65	35
1981	110	67	33
1982	105	69	31
1983	119	78	22
Total	968	58	42

* Controlled for change in age structure.

patients came to the practice at their own initiative. Information was missing for 11% of the patients. Only minor changes in this pattern were found over the years.

Most teeth were extracted in the age groups 45–64 and 65+ years—on an average, 3.7 and 3.4, respectively (Table 4). Among those aged 7–14 years an average of 0.6 permanent teeth were extracted. Most tooth surfaces were filled in the age groups 15–24 and 25–44 years, with averages of 13.8 and 12.1, respectively. Those above 65 years of age received more composite fillings than amalgam fillings.

The average number of filled surfaces and tooth extractions was calculated in two dif-

Table 4. The average number of tooth extractions and number of filled surfaces by age

Age, years	*n*	Extractions		Amalgam fillings		Composite fillings	
		Deciduous teeth, $\bar{x}$	Permanent teeth, $\bar{x}$	Deciduous teeth, $\bar{x}$	Permanent teeth, $\bar{x}$	Deciduous teeth, $\bar{x}$	Permanent teeth, $\bar{x}$
0–2	49	1.8		3.9		0.4	
3–4	240	1.7		8.2		0.9	
5–6	178	2.1	0.1	8.5	1.4	0.5	0.1
7–14	153	1.5	0.6	3.4	2.5		0.6
15–24	147		2.0		8.6		5.2
25–44	203		2.1		7.7		4.4
45–64	62		3.7		2.5		2.3
65+	35		3.4		0.7		1.4

Table 5. The average number of filled surfaces and tooth extractions by year of treatment

Year	*n*	Filled surfaces		Extracted teeth	
		Total, $\bar{x}^*$	Patients with fillings only, $\bar{x}^*$	Total, $\bar{x}^*$	Patients with extractions only, $\bar{x}^*$
1975	96	6.8	8.8	3.0	3.7
1976	106	6.7	8.1	2.6	3.2
1977	116	10.5	13.8	2.6	4.1
1978	118	8.1	11.1	2.4	3.3
1979	146	10.5	13.9	1.9	3.1
1980	139	12.4	16.5	2.3	3.8
1981	116	10.9	14.3	1.6	3.6
1982	106	10.8	14.0	2.6	3.8
1983	118	11.5	15.2	1.8	3.6

* Controlled for changes in age structure and place of residence.

ferent ways (Table 5): first, on the basis of the total number of patients and, second, from the number of patients left when those not receiving any fillings or extractions were excluded from the analysis. The figures were also controlled for changes in age structure and place of residence during the period. The average number of surfaces filled in each patient increased during the period, from 8.8 in 1975 to 15.2 in 1983, calculated on the basis of those receiving fillings only. The average number of extractions decreased during the period for the group as a whole, from 3.0 in 1975 to 1.8 in 1983. However, when those not having extractions at all were excluded from the material, the average number of extractions were relatively constant from 1975 to 1983.

Ten per cent of the patients, mainly in the age group 15–44 years, received endodontic treatment. Other treatment procedures carried out on some of the patients included scaling, polishing of fillings, periodontal surgery, removal of impacted wisdom teeth, and application of fissures sealants. Each patient was offered an individual prophylactic program and a follow-up appointment.

Discussion

The present study describes some characteristics for all the patients given dental treatment under general anesthesia during the past 9 years in a group practice in Oslo.

Previous Scandinavian studies of dental treatment under general anesthesia have mostly been carried out on children (2, 3, 5, 6). In the present study, 40% of the patients were more than 15 years of age.

There was only a minor change in the number of patients treated every year under general anesthesia. However, the patients' age structure and place of residence changed during the period. At the start of the service, mostly young patients and patients from Oslo were treated, which may indicate that these groups more than other groups were demanding the services. By fulfilling their treatment demand and needs, a gradual shift towards treatment of older age groups and patients outside Oslo took place. During the whole registration period a fairly constant number of patients were offered treatment at The Dental Faculty of Oslo and at the regional hospital.

Patients less than 7 years of age received relatively many fillings and had few teeth extracted. This may indicate that if treatment can be provided before the disease has accumulated too far, further progression of the caries lesion can be arrested and extractions avoided.

Patients aged 7–14 years received on an average the same number of filled tooth surfaces as the equivalent age group attending the Public Dental Service (7). Most likely, these patients have been enrolled in the public dental care programs and should have attended the dentist regularly. For some reasons this has not been successful. Treatment under general anesthesia seems to be one way of catching up with their accumulating disease and hence of increasing the chances of maintaining their dental health.

Patients aged 15–24 years received three times as many fillings as those of the same age group treated in the Dental Public Service during the same period (7). This accumulated need for dental treatment can be viewed as part of a vicious circle that cannot be broken by the individual himself. Referral for treatment under general anesthesia represents one means of breaking the circle. If a positive future dental health behavior is established in cooperation with the referring dentists, the need for further dental treatment under general anesthesia may be avoided.

Throughout the period the total number of filled surfaces increased, and the total number of extractions decreased independently of a shift in age structure and place of residence. This treatment pattern can be regarded as a result of the general improvement in dental health during the same period. A decrease in the number of extractions throughout the same period is also reported from a similar study in England (8).

It is likely that there will also be some few patients in need of dental treatment under general anesthesia in the future. The proportion of patients with dental anxiety and medical handicaps treated under general anesthesia was relatively constant during the

period. For these patients, this type of services seems to be an appropriate alternative to conventional dental treatment.

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Received for publication 4 February 1988