On the grounds of these collected data there are some topics that should be preferentially selected for postuniversity training and refresher courses: (1) investigation and standardization of methods for evaluation of patients and for handling of high risk cases; (2) theoretical and practical information about techniques that are currently regarded as most effective in the treatment of acute syndromes and emergencies; and (3) diffusion of knowledge about instruments and medicines that are really useful and should always be available in dental offices.

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Analysis of Systemic Complications and Deaths During Dental Treatment in Japan

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The span of human life has become longer year by year, which means an increase of the geriatric disorders. In dental clinics, the population of the patients with these disorders has been increasing, and this tendency will persist in the future. Dentists have to treat these patients safely without systemic complications.

This study consists of two parts: one about the systemic complications during dental treatment and the other about the deaths that occurred in relation to dental treatment. The former investigation was conducted from 1980 to 1984 by the Committee for the Prevention of Systemic Complications During Dental Treatment of the Japan Dental Society of Anesthesiology, under the auspices of Japanese Dental Society. The latter was based on an investigation carried out by the same committee.

SYSTEMIC COMPLICATIONS DURING DENTAL TREATMENT

Nineteen to 44% of the dentists were known to have experienced one or more systemic complications per year over the five year period. Ninety percent of the complications were of mild degree, and 8% were considered to be serious ones. Information about underlying diseases was obtained in 315 cases with systemic complications, indicating that 35% of the patients were known to have some underlying disease. Cardiovascular disease existed in 33% of patients (Figure 1). The highest frequency of complications was present from the age of 20 to 49 (Figure 2). It was noteworthy that some 20% of all complications occurred in patients from 50 to 60 years of age (Figure 2).

Systemic complications were most likely to occur during tooth extraction and pulp extirpation, primarily during and after local anesthesia (Figures 3 and 4). Of the immediate provisional diagnosis given by the dentists, over 60% of cases were so-called neurogenic shock or syncope, and about 7% were hyperventilation syndrome (Figure 5).

Alteration in chair position (30.5%) and oxygen inhalation (34.9%) were the most common treatment modalities; these two approaches were sometimes combined (4.6%). Other emergency treatments included nitrous oxide (0.5%), rebreathing using a paper bag (0.8%), emergency drugs (12.8%), and a variety of other regimens (14.2%). After these treatments, 73.5% of the patients were able to go home. However some 20% needed a physician's visit to the dental clinic or transportation to an intensive care unit. According to the questionnaire, more than 50% of these patients were found to have some underlying disease as a geriatric disorder, especially cardiovascular and cerebrovascular diseases.

The following are members of the Committee that conducted the interviews: T. Kadowaki, Y. Nakajo, M. Tajima, Y. Koukita, E. Hirai, S. Hasegawa, Y. Ohsone, H. Uematsu, Y. Kaneko, A. Ohsawa, T. Gotou, H. Kasahara, K. Konagaya, H. Monzen, M. Kawahara, Y. Mizuno, Y. Hashimoto, M. Nishi, K. Ohi, W. Mietani, and J. Uehara.

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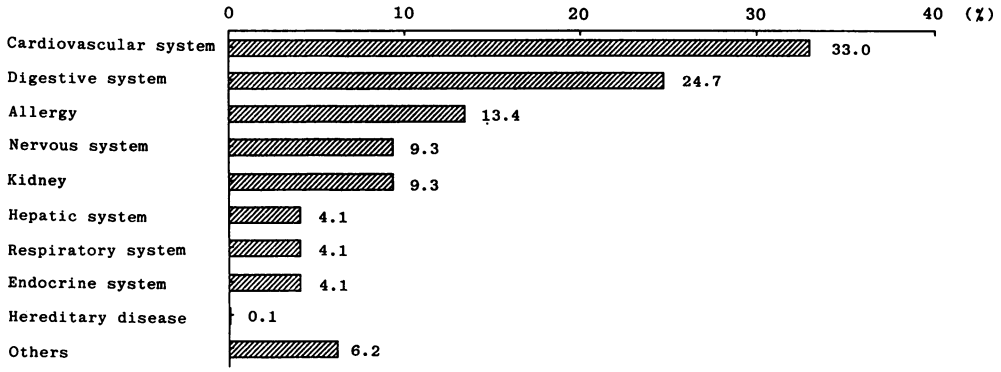

Figure 1. Assortment of systemic disease.

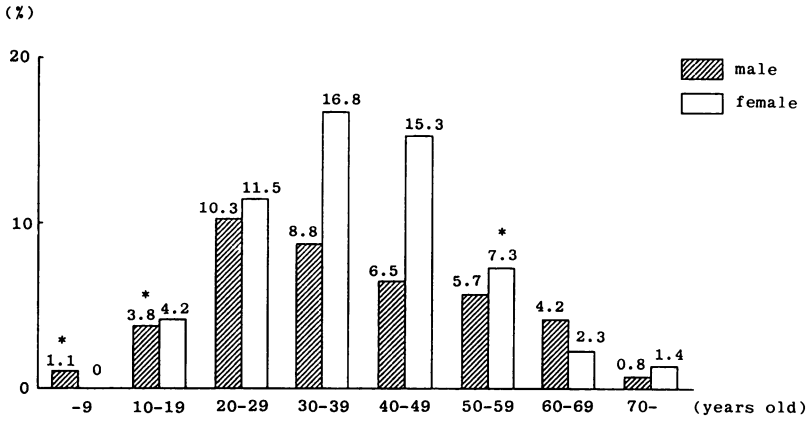

Figure 2. Age and gender of the patients with complication. Asterisk indicates a case of death included.

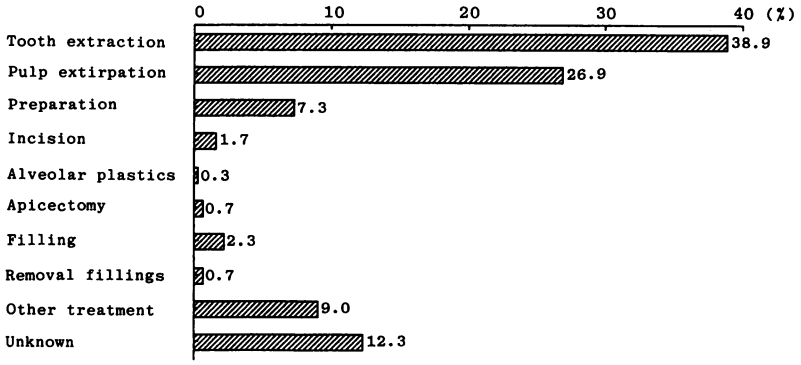

Figure 3. The dental treatment at the occurrence of complication.

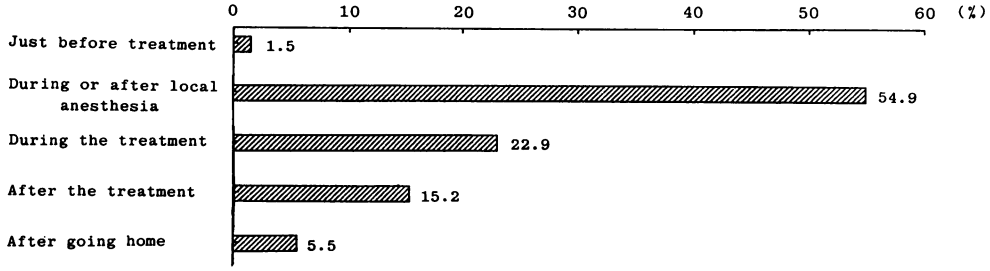

Figure 4. The time complications occurred.

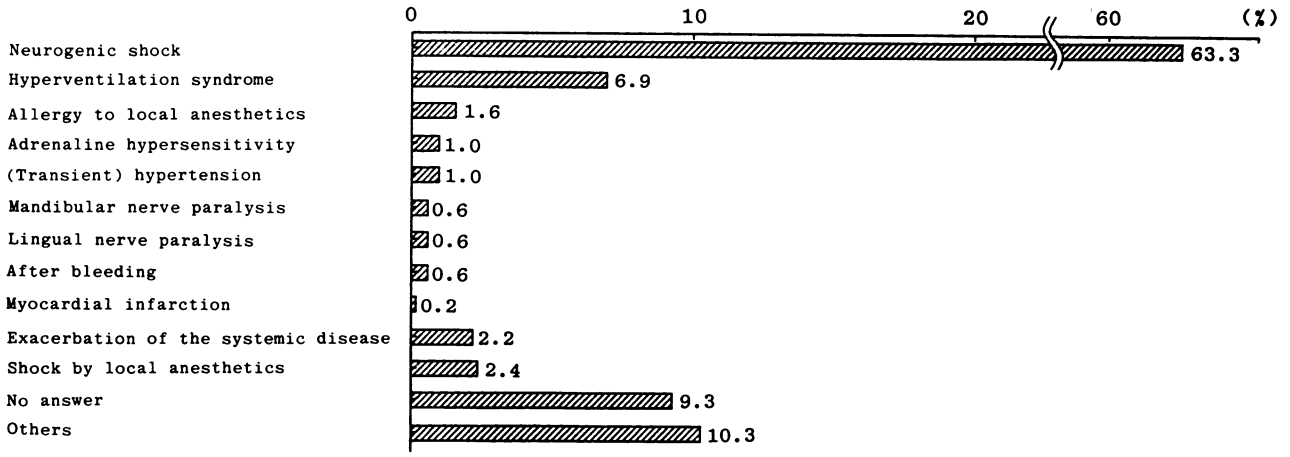

Figure 5. Immediate provisional diagnosis.

DEATHS IN RELATION TO DENTAL TREATMENT

The cases of death related to dental treatment have been evaluated by the committee for 2 years since 1984. Four and five deaths were detected in 1984 and 1985, respectively. Newspapers had reported 15 other deaths relating to dental treatment from 1951 through 1986. Of those 24 deaths, six were due to acute cerebrovascular accident and the other six were due to acute heart failure. As the cause of death, cerebrovascular disorder and acute heart failure each were responsible for 25% of the deaths—that is, half the patients died of one or the other of these two disorders during or shortly after dental treatment.

Safe Sedation in Dental Practice

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In 1986, in Sydney, a patient undergoing intravenous sedation died in the dental chair. This is an obvious tragedy for the patient and the patient's family. It is also a tragedy for the practitioner. My concern in this paper, however, is about the effect that such occurrences have on the broader perception of sedation in dental procedures.

One case of an alleged sedation death completely overshadows the thousands of cases that proceed without complication. It seems to give considerable credence to the critics of sedation and to the criticism of the dentists involved. Worse than this, it moves legislators and government bodies towards restrictive negative action. We must stress not only that our rights must be maintained but also that we will responsibly exercise these rights and raise our standards. One controversial matter that has given rise to much discussion is the question of a second appropriate person. In the case I mentioned, for example, the coroner made the specific recommendation that a second qualified person be present. Without wishing to denigrate efforts to provide safe sedation, it is naive and simplistic to believe that in this ill-defined second person lies the difference between safe and unsafe sedation. Surely it is time we worked out the basic tenets of what constitutes a safe sedation technique.

Surely we can, from our now vast collective experience, determine certain guidelines, certain criteria baselines for safe technique. How far do we have to go before we have the basis of experience on which to draw? These guidelines should be stressed not only in our training programs, but also to existing practitioners—and, further, used as a yardstick to assess clinical procedures in cases where a problem or fatality has occurred.

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