[症例報告]statistical assessment of atopic dermatitis at Ryukyu University Hospital from 1988 to 1992

A statistical assessment of atopic dermatitis at Ryukyu University Hospital from 1988 to 1992

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ABSTRACT

All the records of patients with atopic dermatitis (abbreviated as AD) who visited the Dermatology Clinic of University of the Ryukyus Hospital from 1988 to 1992 were analyzed. The results were as follow: The percentage of AD patients ageinst all the new out patients were 2.16% in 1988, 2.51% in 1989, 2.96% in 1990, 2.39% in 1991, and 5.34% in 1992. The male-female ratio was practically equal (1:1.023). The yearly distributions of the AD patients revealed concave curves with high frequencies in both infantile and adult groups. The age-groups from 0 to 15 years altogether comprised 48% of the total AD patients. The dult AD patients showed apparent annual increase. The most frequented months of 1st visit were March and April. It may be safely concluded that the incidence of AD in our clinic is relatively smaller than those in other university hospitals in Japan.
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Key words: atopic dermatitis, statistics, Okinawa

INTRODUCTION

Atopic dermatitis (AD) is one of the most familiar diseases at a dermatology clinic in most prefectures of our country. Incidence of this skin disorder, however, is rarely defined adequately. This may not only be due to problems of ascertainment bias of statistics but also to inconsistencies in definition of the disease itself which shows a variety in its clinical aspects. In Okinawa, many dermatologists in their every day practice have an impression that the frequency of AD is relatively lower than those in other prefectures. Since there were no statistics of AD in Okinawa, the authors surveyed all the AD patients at the Dermatology Outpatients Clinic of the University of the Ryukyus Hospital during the past 5 years from 1988 to 1992 to obtain a statistical outline of the disease in this island. This paper presents the results of our survey and a discussion about the incidence of AD compared with those of other studies in Japan as well as in several countries of the world.

PATIENTS AND METHODS

All the patients with AD at the Dermatology Clinic of the University of the Ryukyus Hospital from 1988 to 1992 were chosen as our subjects for statistical analysis. Our diagnostic criteria of AD were based on those proposed by Hanifin & Rajka. Suspected patients whose data did not rigorously satisfy the criteria were all abandoned. Patient data were provided by the hospital's computer system. They were arranged according to variables such as age, sex, date (year and month) of 1st visit, and age group depending on year of 1st visit, with the aid of a personal computer.

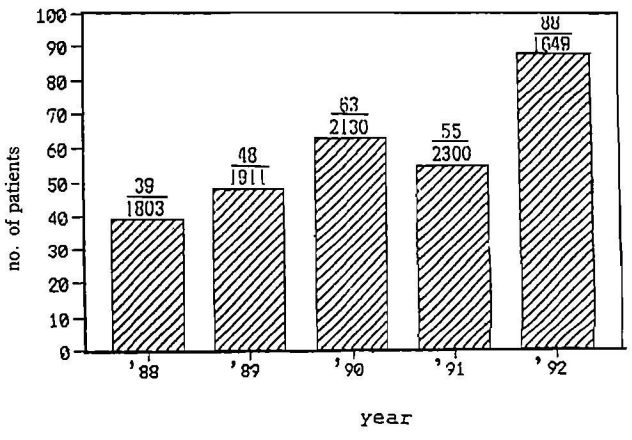

Fig. 1 Yearly distribution of the AD patients from 1988 to 1992. The upper figure above each bar shows the number of the AD patients in each year. The lower one shows the number of the total new outpatients at the Dermatology Clinic of our hospital in each year respectively. The percentage of the AD patients against the total new outpatients was 2.16% in 1988; 2.51% in 1989; 2.96% in 1990; 2.39% in 1991; 5.34% in 1992.

RESULTS

The number of AD patients who visited our outpatient clinic was 39 in 1988; 48 in 1989; 63 in 1990; 55 in 1991; 88 in 1992 (Fig. 1). The number of total new outpatients was 1803 in 1988; 1911 in 1989; 2130 in 1990; 2300 in 1991; 1649 in 1992 (Fig. 1). The percentage of the AD patients against the total new outpatients was 2.16% in 1988; 2.51% in 1989; 2.96% in 1990; 2.39% in 1991; 5.34% in 1992. Both of these 2 variables for the most part seem to increase gradually every year.

The male-female ratio of this disease in the last 5 years was 1 to 1.023. There was practically no sexual difference in the incidence of AD.

The distribution of the AD patients in the past 5 years grouped by 5 year interval is shown in Fig. 2. Approximately, as the age increased, the number of the AD patients decreased. The most frequent score was recorded in the age-class from 0 to 4 years, which comprised 24% of the patients. The age-classes from 0 to 15 years altogether amounted to 48% of the total patients, suggesting that AD is still a pediatric skin disease.

The yearly distributions of the AD patients is shown in Fig. 3. The graph shows concave curves with high frequencies in both the infantile and the adult age-groups. The number of the AD patients in the age-group of 21 and older in 1992 was approximately 8 times as much as that in 1988. The adult AD patients revealed an apparent annnual increase.

The distribution of the AD patients in the past 5 years by age between 0 to 15 is shown in Fig. 4. The peak was observed in the group of less than 1 year of age, which comprised 16.3% of the 0 to 15 age-group.

The distribution of the same group by sex is also shown in Fig. 4. There was no sexual difference in the incidence of AD even in the subgroup of age between 0 to 15 years as a whole.

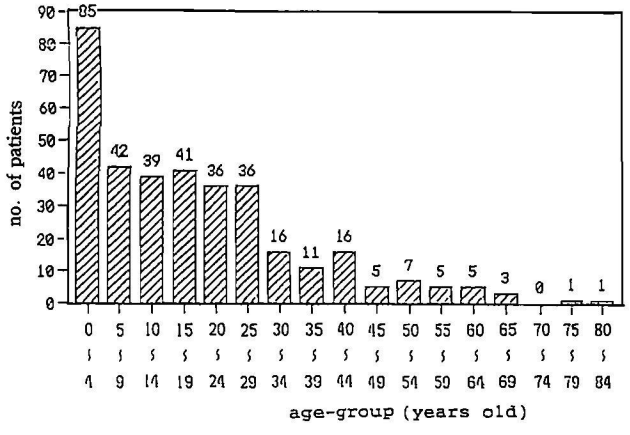

Fig. 2 Distribution of the AD patients in the past 5 years (1988-1992) grouped by 5 year interval.

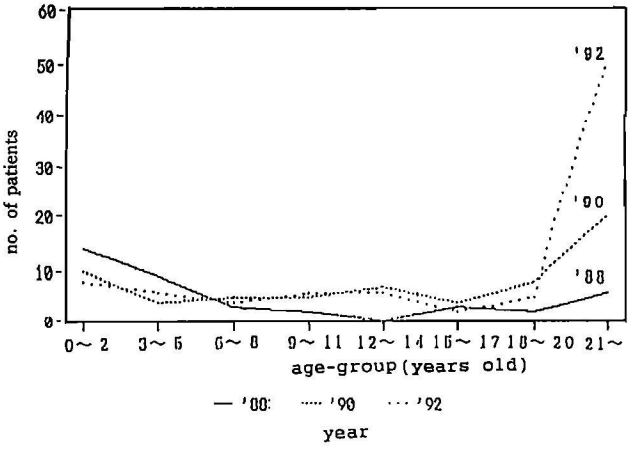

Fig. 3 Yearly distributions of the AD patients covering the years 1988, 1990, and 1992. Solid line shows the distribution in 1988; dotted line shows the one in 1990; sparse dotted line shows the one in 1992.

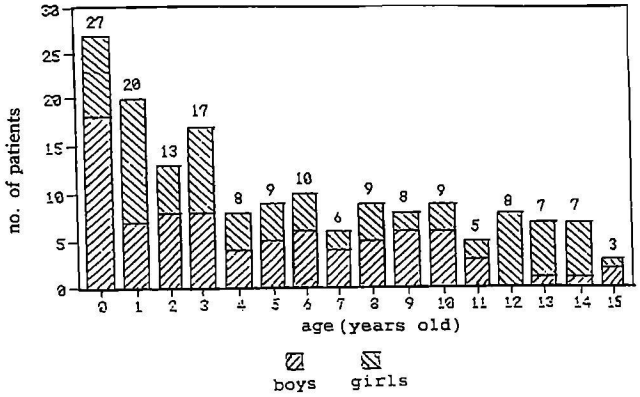

Fig. 4 Distribution of the AD patients under 15 of age and by sex in the past 5 years (1988-1992).

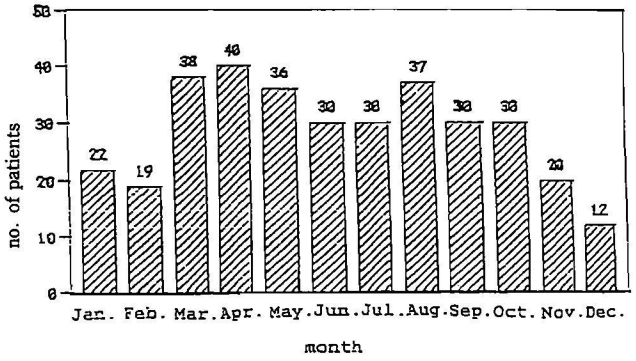

Fig. 5 Distribution of the months of 1st visits of the AD patients in the past 5 years (1988-1992).

The distribution of monthly frequencies of 1st visits of AD patients in the past 5 years is shown in Fig. 5. The peaks were seen in the spring season, namely, March and April.

DISCUSSION

AD is one of the most familiar skin disorders in most countries of all continents. However, the incidence of AD is rarely defined adequately in many parts of the world. Some of the most frequently mentioned reasons for this inadequacy lie in statistical biases and inconsistencies in the definition of the disease itself. The latter seems to be the peculiar situation of AD which demonstrates a variety of clinical features. The international community of dermatologists has not reached a consensus on a satisfactory definition of AD yet. The definition most often used throughout the world today is the one presented by Hanifin & Rajka in 1980[1]. In Japan, more than 4 dermatologists have advocated their own definitions[2]. It was only in December of 1993 that the Japanese Dermatological Association (JDA) presented its first official definition of AD[3]. One thing commonly underscored among those definitions is that most of them emphasize the importance of historic and morphologic findings as a basis of clinical diagnosis of AD. In other words, it depends largely on experience rather than objective laboratory data to make final diagnosis of AD.

Therefore, it seems inevitable that the diagnosis of AD might vary from doctor to doctor with a relatively large variability. Especially, when it comes to infantile eczematous diseases such as seborrheic dermatitis and dry eczema, differentiation of AD from those always provokes a controversy even among experienced dermatologists. Consequently, these situations plague more or less the accuracy of the epidemiologic studies of AD. There is yet any epidemiologic report of AD either in a certain area or in all Japan that is based on a scientifically reliable standard. However, since the official definition by JDA has attracted nation-wide attention, we shall know hopefully before long a more objective prevalence of AD by such a method as a national survey.

The frequency of AD at dermatology clinics of university hospitals are relatively easy to survey in most countries. Many such reports are available in the literature. In our country, it would be convenient to roughly summarize the figures presented by such reports as follows: In 1960s, they ranged from 1.4% to 3%. In 1970s, they ranged 3.5% to 8 %, whic was about 4 times as much as those in 1960s. In 1980s, they increased to range from 10% to 25%, about 7 times as much as those in 1960s[4,5,6]. So far no reports from university hospitals have stated that the incidence of AD has decreased recently, although some state that there is no clearly detectable increase in the incidence either[5].

The Dermatology Outpatient Clinic of Nagasaki University Hospital reported an increase in the AD ratio of their new outpatients in the last 20 years. It was 35/2425 (1.44%) in 1967, and it showed linear increase thereafter, reaching 259/2573 (10.07%) in 1987, which was numerically twice as much as that in 1977 and 7 times that of 1967[6]. They also reported that the increase was remarkable in the age-group of 12 or older, and especially in the age-group over 21. Our clinic observed a similar trend. Our latest percentage of the AD patients among our new outpatients in 1992 was 5.34%, noticably lower than the 10.07% at Nagasaki in 1987. Moreover, it is not difficult to assume that this figure could be much lower than that of Nagasaki in 1992 since they show a linear increas even after 1987. Our ratio of 5.34% was about half as high as the least figure, 10 %, in the range of the frequencies of AD at the university hospitals in Japan in 1980s. The majority of non-university hospitals have reported similar tendencies as the Nagasaki University[4,5]. Therefore, it may safely be concluded that the incidence of AD at our university hospital is relatively smaller than those in other university hospitals in Japan.

The male-female ratio in the incidence of AD was practically equal in our hospital as mentioned above. Most of the reports on the sex-ratio of AD from other facilities in Japan coincide, although some minor differences were observed[4,5,7]. According to Halpern and associates, the male-female ratio of AD in England has been observed to be 1.2:1 for individuals of all ages[8]. Dahl states that among infants and children in the U.S., boys are affected somewhat more frequently and that among older children and adults, more patients are females[9]. However, to our knowledge, no studies have insisted on any significant sexual difference in the frequency of AD throughout the world[5,8,9,10].

It is generally accepted that frequencies of AD depend on age; the higher the age, the less the number of the patients. Our result shown in Fig. 2 is another supportive instance for this empirical observation. The reason for this is still unclear, although most of dermatologists speculate that it has to do with physiological decrease in immunological responses due to the aging process.

With respect to the prevalence of AD in the general population, no nation-wide surveys have been performed in Japan yet. However, many such reports based on school medical screenings and child health examinations are available. Ueda *et al.* examined 26,768 children who resided in 3 different areas such as urban, suburban, and rural communities of Aichi Prefecture in 1981 - 1988. They reported that the total number of AD patients was 865, comprising 3.23% of all the examined children, and that in 1988 alone, the frequencies of AD were 4.29% in ages 4 - 15 years, and 6.71% in ages 1 month - 3 years. They concluded that the frequencies were higher in younger children and in urban areas, and that AD shows an increasing trend year by year[11]. Fukushima *et al.* reported the same trend as this based on the results of school medical examination of all the elementary schools at Izumo city of Shimane prefecture in 1984 - 1989[12]. They stated that the prevalence of AD in the elementary school children in 1989 (7.5%) was about 5

times as much as that in 1984 (1.5%). Hayakawa *et al.* conducted a probably first nation-wide questionnaire about allergic diseases on 180,236 children of ages 0 - 5 years in 1986, and reported that AD existed in 10.0% of the boys and 9.4% of the girls[13]. As for regional differences in prevalence of AD, they reported in 1987 that the frequencies ranged from 3.5% in Okinawa to 12.8% in Hokkaido[14]. The results apparently suggest that the prevalence of AD in Okinawa might be smaller than those in other prefectures. No confirmative surveys have been conducted in Okinawa yet. The speculation awaits future clarification.

In the United States, a national survey revealed that AD affected 7 per 1000 individuals, i.e., 0.7% in 1977[8]. Johnson reported in the same year that the prevalence of AD in the U.S. ranged from 0.07% to 0.24% in the polulation of ages 1 to 71 years[15]. Katz et al. reported in 1979 that the prevalence of AD in the U.S. was 0.7% for all ages and that its frequencies ranged from 2% to 3% in the age group of 1 to 5 years[16]. A community survey in Bristol, England demonstrated that 3.1% of children under age 5 years had AD[17]. The figure, 3.5%, presented by Hayakawa as the frequency of AD in Okinawa in the corresponding age group almost coincides with those in so-called developed countries.

It is widely accepted that the incidence of AD is high in most countries of all continents. However, in Punjab, Pakistan, Porter reported in 1980 that AD affected 2.7% of a total of 444 examined children younger than 5 years of age[18]. In Nigeria, Olumide reported that the incidence of AD among a recent group of 4000 consecutive dermatology patients was 3.1%[10]. Shimao reported that no AD patients had been observed in Nepal during a medical service conducted by the School of Medicine of Tottori University[19]. Thus, the frequencies of AD vary in regions of the world with a relatively large distribution. This may be due to so-called environmental factors. It is not clear, however, what environmental factors influence AD patients most either from a global perspective or from a regional one. Rajka states that climatologic/geographic conditions, professions, and psychic stress have a decisive role in the course of AD according to the data from 19 different countries[20]. Unfortunately, no adequate accumulation of epidemiologic data is available to clarify this issue.

The most frequented months of 1st visit of the AD patients at our clinic were March and April. According to Uehara et al., AD mostly occurs or is aggravated in the spring seasons (March)[21]. Our result apparently coincides with this. Rajka stated in the above study that the peak of AD was reported in different periods of the year, clearly correlated with the role of climatologic factors; either cold/dry weather leading to skin dryness, or hot/humid weather leading to hyperhidrosis, itch, and secondary infections as aggravating factors[20]. These climatologic conditions occur either during winter or during sping/summer season in our country. In Okinawa where the lowest temperature is about 10 degrees in Celsius, cold/dry weather is infrequent in winter. This may be why the AD patients here are less frequent in winter seasons.

AD is said to be multifactorial in etiology. To get a clearer view of this disease, further epidemiologic studies are being awaited.

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