A STUDY ON THE PATIENTS WITH SCABIES IN KOREA

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ABSTRACT
This study was conducted to understand the status of scabies infection and its epidemic characteristics in the Korean hospitals. 43 hospitals (86.0%) received the reports of scabies infection with suspicious or definite diagnosis to infection control department, implicating continuous increases 14.6% (7/48), 20.8% (10/48), 35.7% (17/48), 44.1% (21/48), and 56.7% (27/48) in 2010 to 2013 and 35.7% (17/48) in 2014 up to April.

92.0% of the hospitals had the rules and guideline of scabies infection control, which seemed to be prepared by the recent certifications of medical institutions and establishment of rules in infection control departments. However, less than half of the hospitals 44.0% (22/50) prepared the screening system related to scabies during the admission processes of the patients, 56.7% of the patients had the typical symptoms related to scabies when they admitted with 47.0% of pruritus, requiring the system to prevent from the scabies epidemic beforehand.

Keywords: scabies, infection, epidemic characteristics.

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1. INTRODUCTION
Scabies, a parasitic dermatological disease by Sarcoptes scabiei Var. hominis, has the symptoms of rash and severe pruritus at night and it is transmitted by the skin contact. Norwegian scabies has been known as its severe symptoms and strong contagiousness with atypical scales and eschars [1] and reported as the main cause of scabies infection [2] and to be delayed further up to its diagnosis compared to the typical scabies [3]. Infection rates of scabies in Korea were approximately 2% in 1960s, reached to the peak approximately in 1980s, and then decreased to less than 1% since 1990s, in case of outpatients in dermatology of general hospitals [4]. However, case reports and multicentric retrospective research results had been continuously reported after starting report of epidemiology study on scabies occurred in elderly nursing facilities in 2006 [5-11].
In addition, the number of reimbursed patients by the diagnostic code of scabies (B86) was increased from 36,688 in 2007 to 52,560 in 2011 upon the analysis results of health insurance payment data for the past 5 years from 2007 to 2011. The biggest age group increased in terms of number of treated patients per 100,000 population was over 80 years old with 31.6% annual growth rate followed by 70s with 20.2% and 60s with 19.6%, showing the increase higher in the elderly groups [12].

The number of scabies patients in overseas showed the increasing trend, too. In France, the number of treated patients due to scabies had been increased from 1999 to 2010, reporting 328 patients per 100,000 population for its prevalence [13]. In Taiwan, it was reported that 399 patients were hospitalized from long-term care facilities into a general hospital with 890 beds among 706 patients who were diagnosed from January 2006 to December 2008, and the average age of them was over 80 years old [14]. In Japan, upon the epidemiology study result of scabies in 1,795 psychiatry hospitals and long-term care facilities in January, 2005, 741 (41.3%) institutions were responded to report that 334 (44.9%) institutions experienced the patients with scabies, 159 (47.7%) experienced the epidemic of scabies, and 51 (15.3%) institutions had Norwegian scabies during the epidemic of scabies [15].

Scabies is an uncommon infectious disease in the hospitals. If its effective infection control activities are not performed timely, it may implicate the additional costs on the secondary infections in the patients or hospital employees and infection control, and secondary damages such as psychological damage and working limitation in the employees. Kim et al [16] reported that all the patients and hospital employees who had visited the intensive care unit in neurosurgery department of a general hospital for the past three months had been treated with dermatology cares as one nursing assistant was identified as the scabies patient who was working at the intensive care unit, resulting in 11.9% of secondary infection rate and 44.0% of tertiary infection rate. In addition, upon a literature review related to scabies from 1983 to 2003, it was reported that 16 hospitals had experienced 19 times of hospital infections with scabies. Among the hospitals experienced the hospital infections, 9 hospitals had 18 infected patients on average, the incidence in 5 hospitals was 12.9%, the number of infected hospital employees was 39 on average in 16 hospitals, and average incidence in 9 hospitals was 34.6% [2]. There was a case that infection control was performed including timely treatments and isolations for the causative patients and preventive treatments for the exposed people once the epidemic of scabies was occurred in a tertiary hospital in Canada. As a result, no more infection was occurred beside five employees and two patients who had the symptoms, and the treatments for those exposed were completed [17]. Scabies infection seems to be increased in the hospitals which may be related to the transfers from long-term care facilities, however, the recent practices of scabies infection in the hospitals were not identified in detail and few studies had been performed on the infection control activities at the epidemic of scabies in the domestic hospitals. This study aims to understand the incidence of scabies and characteristics of its epidemic in the domestic hospitals and to utilize them as the basic data.

2. THEORETICAL BACKGROUND

2.1. Symptoms of scabies infection and epidemiological characteristics

Scabies is a dermatological disease occurred by Sarcoptes scabiei Var. hominis. Female Sarcoptes scabiei can be observed with naked eyes, laying the eggs upon making burrow on the skin surface, and they have four pairs of legs moving 5 mm per day. Scabies transmission is occurred by body and skin contacts commonly in the congested areas and its epidemic is frequently occurred in nursing homes, nursing care hospitals, and jails. Once the person is infected by scabies, they are found in between fingers, flexus of wrist, near the man’s penis,
sole, top of the foot, buttocks, axillary areas, and so on after latent period of 2-6 weeks [18]. In a multicenter research on the practices of scabies patients, occurrence areas were reported to be 51.1%, 47.0%, 38.0%, 36.8%, and 34.8% at hands, near genital organs, armpits, between fingers, and sole, respectively [19].

Scabies infection is diagnosed normally based on the distribution of rash and existences of burrows.

If possible, the diagnosis of scabies should be performed by identifications of Sarcoptes scabiei, their eggs, or stools. It can be performed with microscopic exam upon eliminating Sarcoptes scabiei at the end of burros, or capturing them, their eggs, or stools using the needle tip carefully [18].

With respect to the case reports of scabies, upon the analysis of epidemiological characteristics in 1,539 outpatients with scabies in the domestic general hospitals, the patients aged between 70 – 79 years old were the most prevalent with 14.7%; the estimate times of infection were November and September with 11.6% and 11.2%, respectively, showing distribution of patients more in fall and winter; and the shares of durations up to the diagnosis were 40.5%, 59.7%, 73.6%, and 82.0% for 1, 2, 3, and 4 months, and 3.6% took over one year. 9.0% patients were in the immobile status and 13.6% patients were in the assisted mobile status. With respect to the estimated places of primary infection, patients’ own homes were the most prevalent with 66.7%, while nursing hospitals, general hospitals, and nursing homes were 8.7%, 7.7%, and 6.7%, respectively. For the estimated infection routes, 25.8% were reported to be infected by other patients, healthcare assistants, or healthcare professionals in the hospitals or nursing homes [9].

In a British epidemiology study on scabies epidemic in 7 residential care homes where its epidemic was experienced, they reported 94.9% of the residences with dementia, females with 74.4%, incontinence patients with 79.5%, and incomplete mobile residences with 61.5%. Over 80% of them had the symptoms of itching and redness and they were diagnosed within one week from the symptom occurrence, but it took over 5 months in some cases [19].

2.2. STATUS OF SCABIES EPIDEMIC IN THE MEDICAL INSTITUTIONS AND FACILITIES

In 2008 in a university hospital, one patient admitted due to dyspnea as a main symptom was transferred from general ward into intensive care unit to be diagnosed with systemic infection by Norwegian scabies on Day 6 and reported to Infection Control Department. Preventive treatments were administered to the employees and 78 patients who contacted the patient and no secondary infection was reported upon follow up for the following two months [20]. No multicenter study report was found on the scabies epidemic in the Korean hospitals.

In case of overseas, five healthcare professionals and two patients were reported to be infected with scabies according to a report on the scabies epidemic in Canada that was occurred unknowingly until the third admission of the patient who had got renal transplantation in a tertiary hospital in 2020 [17]. In Japan, according to the epidemiology study of scabies in 1,795 psychiatry hospitals and long-term care facilities in 2005, 334 (44.9%) institutions had the infection in 2004, 159 (47.7%) experienced the epidemic of scabies, and 51 (15.3%) institutions answered to have Norwegian scabies. In the cases of scabies epidemic, Norwegian scabies were 64.0% and ordinary scabies were 46.6% [21].

2.3. INFECTION CONTROL OF SCABIES AND TREATMENT

In 2010, CDC in the USA announced the guidelines for preventing and controlling scabies outbreaks and their contents on general scabies are as follows. People who are exposed to
scabies should be recorded on their general characteristics and their symptoms should be monitored up to two months. Direct skin contact should be avoided with the scabies patients. In case of contacting the patients, gloves should be worn, and hands should be washed afterwards. Direct skin contact should be avoided with the patients on the treatment of scabies within 8 hours. Family members of the employees who are exposed to scabies and treated should be included as the treatment subjects. The employees who are exposed to scabies can return the clinical site after treatment, however, those with symptoms should wear disposable gloves when they perform nursing cares to the patients for some more days after the treatment until they are confirmed without infection. Additional guidelines on Norwegian scabies are as follows. High potential of epidemic of Norwegian scabies should be remembered. Epidemiologic data should be used for the confirmed cases with Norwegian scabies on building, room, floor, employees, admission date, initial symptoms related to scabies, visitors, and so on. Caution to contact should be performed (gown, disposable gloves, shoe covers, and so on). The patients with Norwegian scabies should be isolated (Cohort isolation can be considered). Visitors should be controlled.

In case of scabies epidemic in the domestic medical institutions, they reported to pay attention to the separate collection of linens that patients used and to disinfect the goods used, bed, and surfaces of medical devices [16][20].

Vorou[2] et al. reported from reviews of 16 case reports with scabies from 1983 to 2003 that three cases out of them should have washed linens and patients’ clothing using high temperature water and dryer, and four of them should have cleaned carpets and furniture by vacuum cleaning [22].

3. CONCLUSION

This study was conducted to understand the status of scabies infection and its epidemic characteristics in the Korean hospitals. 43 hospitals (86.0%) received the reports of scabies infection with suspicious or definite diagnosis to infection control department, implicating continuous increases 14.6% (7/48), 20.8% (10/48), 35.7% (17/48), 44.1% (21/48), and 56.7% (27/48) in 2010 to 2013 and 35.7% (17/48) in 2014 up to April. 92.0% of the hospitals had the rules and guideline of scabies infection control, which seemed to be prepared by the recent certifications of medical institutions and establishment of rules in infection control departments. However, less than half of the hospitals 44.0% (22/50) prepared the screening system related to scabies during the admission processes of the patients, 56.7% of the patients had the typical symptoms related to scabies when they admitted with 47.0% of pruritus, requiring the system to prevent from the scabies epidemic beforehand.

In terms of season to occur scabies, Park et al. [9] reported higher distributions in fall and winter with 11.6% in November and 11.2% in September, while the detection season of scabies epidemic in this study did not show the seasonality since 20.0% occurred in January and April, and 16.7% in August. This may be difficult to compare the cases directly because the occurrences of scabies were not be considered as the time to detect the causative infected patients, however, it can be used as one of the references, which require further studies on the epidemiologic changes of scabies compared to the past.

REFERENCES

A study on the patients with scabies in Korea


