

The base research for safety management of decorative tattoo

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□ Background

Tattoos can be classified as traumatic tattoos, decorative tattoos, permanent make up, and medical tattoos. The prevalence of tattooees has been estimated to be 8-13% in Europe and 24% in the USA, and due to the increase in the tattooed population, each country has been establishing regulations to manage the industry at the national and local levels. Since tattooing is considered a type of medical practice in the Republic of Korea, it is a violation of medical law if non-medical personnel perform tattooing. In the past, tattoos were perceived negatively because they were associated with either crime or punishment, but as the public's perception of them has improved, the tattoo population has increased. Although adverse events occur because tattooing is an invasive procedure that punctures the skin and injects pigments, there is a lack of information about the current situation and safety management.

National Evidence-based healthcare Collaborating Agency (NECA) conducted a study to collect basic data about the status of decorative tattooing in 2014. A systematic literature review identified published reports of adverse events associated with tattooing; the events were classified by type, pattern, and causes. This study reviewed the licensing and administrative regulations for tattooers/tattoo parlors, regulations for tattoo inks, and other regulations related to tattoos by analyzing regulations for tattoo businesses in major countries. It also investigated the status of domestic tattooers through an Internet-based survey. Adverse events reported in published papers were classified as redness/pain, infection,

immune-related disorders, and neoplasms. In other countries, the tattoo industry has been regulated by categorizing it in terms of the areas of tattooers, tattoo parlors, sanitation, tattoo prohibition for minors, and inks. In a survey of domestic tattooers, the establishment of a regulatory system of licensure, provision of safety regulations, and infection control education were identified as safety requirements. In the 2014 study, the management status of the industry in foreign countries was reviewed by examining their laws and regulations, but the regulations for risk management were not reviewed. Moreover, information about tattooees was insufficient because the report focused on the status of tattooers. It was necessary to verify the tattooers' responses because many of their responses could have been guarded due to the nature of the study.

☐ Objective

The present study aimed to review the methods used to minimize the risks associated with tattoos. To accomplish this goal, this study attempted to determine what is needed to regulate the tattoo industry and what is lacking, by learning about the domestic status of the tattoo industry through group interviews with tattooees and tattooers, and reviewing and comparing the regulations of major countries according to each type of risk.

☐ Methods

- Group interview survey of domestic tattooees

A group interview with domestic tattooees was conducted to learn about patterns of tattoo usage by tattooees, their perceptions of risks, and improvements to be made. Fifteen tattooees were recruited using pre-designed questions. The participants were divided into three groups, based on an algorithm, with each group having different characteristics. The interview was performed by one interviewer using a semi-structured questionnaire prepared in advance.

- Interview survey of domestic tattooees

As a follow-up research of 2014-survey study, with recommendations of KTAA (Korea Tattoo Artist Association) and KTA (Korea Tattoo Association), in-depth interview was performed with the results former research.

- Dermatologist consultation

Dermatologists recommended by the Korean Dermatological Association and the Association of Korean Dermatologists were consulted about methods of minimizing risks and organizing the report.

- Review of tattoo regulations of major countries

The 2014 study examined the administrative methods of the USA and Europe, where industry-related regulations were in place. In the USA, the states of Oklahoma and California, and the City of Philadelphia were examined according to their regional characteristics, and in Europe, France and England were surveyed. According to the classification system developed in the 2014 study, data were categorized into tattooers/tattoo parlor management, infection control, tattoo prohibition for minors, ink management, and other categories. The most recent information on the newest trends and cases in other countries were collected by participating in conferences.

□ Result

- Domestic tattooees received most of their information by searching the Internet.

- When they chose a tattooer, the major factors affecting their choice were the pictures that suited their taste, the reputation of the tattooer, and the distance of the parlor from their residence.

- The most important reason for tattooees to remove a tattoo was social perceptions. When tattooees were not satisfied, they covered up the tattoo with another one or became indifferent to it; however, removal was rare.

- They stated that the more tattoos they had, the more they understood people with tattoos, or that they wanted to have more tattoos.

- Domestic tattooees were positive about consent forms/written instructions for the care of the tattoo site, and they preferred the consent form.

- Domestic tattooers never discarded disposable products as a medical waste.

- Domestic tattooers obtained information through the Internet and exchanged it with domestic and foreign tattooers.

- Tattoos are strictly prohibited for minors in other countries.

- Other countries regulate facility requirements and infection control.

- In the state of Oklahoma, to have a license issued, an applicant must complete an apprenticeship and education about infection control, and pass an examination.

- The qualifications to obtain a tattoo parlor license in England and France are similar. Education about infection control is required.

- Group interview with domestic tattooees

The tattooees' reasons for being interested in tattoos were mostly due to the influence of friends and acquaintances. Information on tattoos or

tattooers was mainly obtained through the Internet. The selection of a tattooer/tattoo parlor was influenced by the reviews of those who had already been tattooed, the portfolio and reputation of the tattooer, recommendations from acquaintances, and distance from the tattooee's residence. Many respondents said they obtained information about the tattooer/tattoo parlor and tattoo by utilizing the Internet. The satisfaction of the tattoo recipients was influenced by their emotional closeness to the tattooer who answered questions sincerely in the consultation before the visit or kindly consulted the tattooee before the tattooing procedure. The word, "trust" was used frequently. The most important factor considered when choosing the tattooer or tattoo parlor was whether the style of drawing matched the taste of the tattooee. The tattooees did not pay special attention to infection control, but they stated that the procedure was sanitary and mentioned the tattooer's use of the autoclave and disposable needles as proof of sanitation.

The factor that most affected the emotions of the tattooees after the procedure was their degree of satisfaction with the pictures/letters. If the client was satisfied with the pictures/letters, even if an adverse event occurred at the tattoo site, they went back to the same tattooer to have another tattoo done. If the tattoo recipients were not satisfied with pictures/letters, they either became indifferent to it or considered covering up the tattoo with another one, but rarely did they say they would remove it. The factor that affected the decision to remove a tattoo was the social perceptions of superiors at work, colleagues, and parents. Although tattooees agonized about getting a tattoo until they actually did, they exhibited an addictive tendency once they had the tattoo by saying, "I want to have another tattoo in a different design on a different place."

There were cases in which tattooees were not informed about the possible adverse events or complications of tattooing before the procedure was done. Participants agreed that consent forms or written instructions for the care of the tattoo site were necessary, but some said that the information provided

in them was "frightening" or "too much." Instead of written instructions conveying information, they preferred a consent form that was signed by each party because it implied that they would be responsible for each other. There were participants who stated that they would not have had a tattoo done if they were informed of such risks.

- Interview with domestic tattooers

Tattoos have had many negative images in the past. Tattoos became more familiar to the public after the 2002 World Cup, when tattoo parlors started to appear in Hong Ik University and Itaewon areas, with foreigners or international students. They stated that they started working as tattoo artists because of their interest in it as an art and as a means of making a living. Although they learned from domestic tattooers, the type of education was more observational than structured, and they mostly studied by themselves through the Internet by exchanging information with other tattooers. Currently, they purchase products from suppliers or through the Internet. In the past, it was difficult to obtain supplies; needles were reused occasionally and inksticks were used instead of dyes. At the time, there were suppliers who sold fake or poor quality dyes. After 2002, however, as population of tattooees expanded to include the general public, the number of suppliers increased, which caused prices to drop, and resulted in a trend of using disposable needles and tattoo inks.

In the 2014 survey, 33% of the respondents reported that they treated disposable waste as medical waste, but in reality, none of them did so. Information about follow-up management frequently was provided in writing. Infection control and parlor facilities were benchmarked using tattoo studios in other countries. Although efforts were made to address infection control by wearing gloves, using disposable needles, and installing autoclaves, these activities were not sufficient.

- Review of tattoo regulations of major countries

The United States, England, and France prohibit tattoos for minors. The minimum age for both tattooer and tattooees was 18 years in the state of Oklahoma. To be qualified as a tattooer, the applicant must have a minimum of one year, but less than two years of training, with 1,500 hours of an apprenticeship, receive education about infection control at a government-certified facility, and pass a written examination. The collection of complaints from tattooees by the State Department of Health was a unique feature. In the city of Philadelphia, a three-year apprenticeship is required. In the state of California, a minimum of two hours of education about esthetics and education about infection control and blood-borne pathogens are required.

Licence in England and France were similar to tattoo parlor permission. To open a tattoo parlor, infection control education from an accredited certification agency should be completed. The industry regulations in England were not in a legal format, but in a toolkit format and contained information about rules for wearing protective equipment, management of blood-borne disease, and waste disposal. In France, tattooers are required to provide the tattooee with a written explanation developed by the government, and the government had a monitoring system for tattoo-related adverse events.

□ Conclusions

Decorative tattoos have various aspects. A tattoo has an esthetic, is a personal choice, and the consequence of the choice to receive a tattoo is permanent. Tattooing is invasive and involves the injections of foreign substances into the body. The major reason for tattooees' dissatisfaction with decorative tattoos concerned the tattoo's esthetic quality, and the reason for tattoo removal was largely due to negative social perceptions. In addition, because tattoos are permanent, tattooees may regret having them after time

has passed, and the time and cost for removal may be several times greater than the original tattooing time and cost. Because tattooing is invasive, pain and infection can occur, disease can be transmitted by blood borne pathogens because of exposure to blood and other body fluids, and emergencies can occur. The injection of foreign materials can cause allergic reactions, reactions to foreign bodies, and immunological problems. Therefore, to minimize the risks of decorative tattoos, the various aspects should be considered. Countries where various aspects are regulated currently oversee the prohibition of tattoos for minors, the provision of information before the procedure, prior consent of the tattooee, tattooers' education about esthetics for the service contract aspect and health and hygiene, tattoo parlor regulations, infection control, and ink regulations for the healthcare aspect.

Acknowledgement

This Research was supported by National Evidence-based Healthcare Collaborating Agency(NECA) funded by the Ministry of Health and welfare (grant number NH15-003).

Key words

tattoo, tattooer, tattooee, adverse event, regulation, legislation, group interview