Impacts from Hazardous Products on Nurses

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\textbf{Abstract.} Occupational diseases exist in all walks of life due to different environments. In hospital, nurses are getting in touch with hazardous products continuously. On account of the occupational particularity, they need to be protected, in order to develop a better nursing care. The phenomenon of nurse exposure to harmful products and their influence is presented in this paper. Some recommendations are also promoted to guarantee nurses’ safety.

\textbf{Introduction}

Occupational diseases exist in all walks of life. Nurses are a kind of group who always work in the front line of saving people. In hospital, nurses do medical nursing care, get to know people well, and help them to get through this tough sick period. However, during that time, they are getting in touch with hazardous products continuously, even body excrement.

Nurses’ exposure to hazardous products has always been existed since the found of nursing----Florence Nightingale. Nurses can easily get in touch with powdery medicine with side effects on healthy people. Anesthetic gases influence their nervous system. Toxic chemicals which may do harm to their skin and eyes, and X-rays which may cause chromosomal changes and many more [1]. Although the development of technologies has helped nurses to stay away from those hazardous factors, nurses are still under threats. If nurses’ health is under threats, there will be fewer nurses on duty. This causes more stress to the nurses working in the hospital. Indirectly, this can exacerbate the phenomenon of nursing shortages.

Some of those dangerous factors can be avoided, but some cannot. Nurses’ safety is as important as patients’ safety.” said Martha Polovich, PhD, RN, AOCN [2].Therefore, nurses should be aware of the impacts from these factors and learn how to avoid harm effectively, especially nurses who are pregnant or on breastfeeding. What’s more, the government should promote some policies to protect nurses. This following article is aimed at presenting the phenomenon of nurse exposure to harmful products and their influence. At last, some recommendations are also promoted to guarantee nurses’ safety.

\textbf{Causes and Effects}

Nurses stay in hospital for the long term. A study did by Lawson and her colleagues found that drugs, sterilizing agents, X-ray equipment and anesthetic gases are hazardous to nurses[2]. Nurses exposed to a continuous long-term environment even with low doses of chemicals have chromosomal damage [3]. Nurse organizations and environmental health advocacy groups in the United States did a study and found that nurses getting in touch with chemotherapy medicines have higher risk of cancer that those who do not [1]. In the operating room (OR), nurses are
helping anesthesiologists and they may inhale some anesthetic gases, as well as anesthesiologists. “36% of American nurses reporting exposure to anesthetic gases have been found to have up to seven times higher risk of central nervous system, cardiovascular, genitourinary, and musculoskeletal birth defects in their children.”[1]. Nurses who worked with antineoplastic drugs doubled their risk of having a miscarriage, and those who had never given birth before more than tripled their risk. Nurses who were exposed to sterilizing agents had a two-fold increased risk of late miscarriage [2]. When patients need a CT scan immediately, doctors and nurses are under the irradiation of X-ray.

In China, nurses are under the high risk of needle stick injury. If the needle is infected with HIV or hepatitis virus, the consequence is worse, on the basis of percutaneous injury. What’s more, in intensive care unit (ICU), exhaust gas emission from patients’ ventilators contains varies bacteria and virus which may be aggressive to low-immune health care workers (HCWs) and leads to hospital acquired infection (HAI). In addition, when nurses are grinding tablets for patients, they may inhale some powder which can have side effects on healthy people[1]. When nurses collect excrements (such as urine, fester, sputum, blood), harmful substances can cause unsafe incidents. In the respiratory department, nurses are requested to wash hands with alcohol based sanitizer before bedside operation. This kind of alcohol based sanitizer can have negative impacts on nurse’s skin. It is observed that this can make their hands dry and more susceptible to crack.

Because of those negative impacts, people do not think nurse is a safe job. Therefore, with the reasons listed above and the demand for hospital nurse increases rapidly, nursing shortage will be worse. On the other hand, this leads to more stress on nurses which may lead to series of psychological problems. Because the average nurse need to take care of more patients. They will be more tired which leads to the symptom of inattention. The risk of clinical nursing accidents will be caused by nurse inattention. All these causes will lead to patients not getting the best nursing care.

Strategies

Some essential implements could be provided by primary care center to keep workers in healthy condition. Here are some strategies to face this challenge.

(1)Nurses should always pay attention to their exposure to dangerous substances. Adhere to the operating principle in clinic practice is necessary. Aseptic principle is not only set for protecting patients, what’s more, for protecting nurses and other HCWs. At the same time, nurses should engage in regular medical check-ups and immunization, so that they can discover problems early and get treated timely. Once nurses are diagnosed with occupational diseases, they should get compensate they deserve at law.

(2)Education is another method. Health care organization can educate nurses about toxic products, chemicals, and other harmful substances, teach them how to cope with those hazards and try to figure out what can replace those hazards in treatment [2]. Nurses should be active at focusing on self-health. By this way, nurse will avoid touching toxic substances voluntarily.

(3)Personal protective equipment (PPE) is useful in protective isolation. Nurse need to wear gloves, goggles, isolation gown, surgical cap and other protective properties to keep themselves away from patients’ body fluid or other kind of dangerous substances. It is observed that nurses often underestimated the harm from biological wastes when they were implementing contact operation, such as not wearing gloves when performing catheterization [4]. A study has found
that the implement of wearing PPEs in chemotherapy unit (CTU) could protect professionals (e.g. nurses and doctors) from chemical exposure and best practice guidelines could help them minimize the risk [5]. In my opinion, it is the most effective method. Although, wearing PPEs adds more complex operation steps and working loads. HCWs are required to wear several pieces of PPEs, therefore sometimes HCWs may miss the best rescue time.

(4) For HCWs, promoting appropriate hospital layout is recommended to hospital equipment arrangement manager which contributes in HAI [6]. Promoting the classification of air cleanliness contributes to a lower rate of HAI by using high-efficiency ventilation system. Even if high-efficiency ventilation system is limited to the development of technology and the hospital equipment cost.

(5) Occupational health policy maker plays an important role. In 1987, the U. S. Center of Disease Control has proposed that slipping over needle cap with two hands is forbidden. On the other hand, less injection on patients can not only reduce invasive trauma, but also decrease the risk of needle stick injuries on nurses effectively. America Nurses Associate (ANA) suggests that National Institution of Occupational Safety and Health (NIOSH) could offer alternative jobs for HCWs who are getting in touch with hazardous products and are trying to pregnant or on breastfeeding [2]. ANA also recommends NOISH to inform HCWs if their job has certain influence to their health, especially to reproductive system [2]. To alleviate the heavy load on clinic nurses, hospital should recruit more nurses. Another policy----raise the retirement age----has been proposed in Australia [7].

If more efficient PPEs, policies and other kinds of protective advices are promoted, more nurses will be under protection of equipment and policies, which are tending to suffer less risk of occupational health diseases. Thus, there will be more nurses in the hospital, the number of patients assigned on average nurses will be less. So that nurse can spend more time and energy on one patient. This can make nurse an easier and more relaxing job and patients can get better nursing care as well. If nurses are allergic to latex, they may need other protective equipment made by special material.

Conclusion

Nurses are an important and special social crowd. The public and patients are always concerned about patients’ health condition exclusively. Few people pay attention to nurses’ health condition. Although some strategies have come into clinic practice, some hazardous products are unavoidable, such as antineoplastic chemicals, alcohol based sanitizer and needles. There will still be risks and unconscious mistakes existing. Therefore, nurses should try their best to protect themselves from chemicals, body excrements and other toxic products through education offered by health organizations. Also, they need to have regular medical check-ups. Occupational health policy maker can propose some favorable policies as well.

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