Nosocomial infection control by wireless sensor network in Intensive Care Unit

Sir,

Nosocomial infections are a common complication in patients who have been taken to Intensive Care Units due to breathing deficiency, trauma, and major surgical attempts and have been defined as an infection acquired during or a result of hospitalization.[1]

It imposes a financial burden on the health care system as well as increasing mortality rate.[2]

Lack of proper monitoring systems to prevent transmission of the infection has led to more challenges in this area.

Wireless sensor networks (WSNs) which are composed of several nodes and gates are favorable standard technologies to control patients with nosocomial infection.[3]

They are significantly useful in community's health promotion such as monitoring of patients, diagnosis, prescription, and distribution of medicine in hospitals, remote monitoring of physiological data, and particularly, identification and control of nosocomial infection.[3-5]

Given the importance of smart healthcare provision for elderly patients, permanent patients, and children, researchers have investigated complementary methods to promote healthcare services. Remote monitoring of patients that has increased with the advent of mobile and wireless systems is not a new idea, but it is rather a low-cost mean which ensures understanding of the environment and is considered suitable for deployment on the patient's body because of its wireless nature.[4] It minimized the need to healthcare provider's help for elders and people who suffer chronic. Moreover, the applications of WSN are considered in military, environment, household, business, and healthcare fields, the most important of which can be remote monitoring of physiological data, tracking, and supervising patients and physicians in a hospital, use of medicine through requirements such as coverage, reliability, security, and interactivity.[4]

Finally, the WSN is an effective, scalable, and reliable smart system to control health at home, healthcare, and emergency centers with the ability to send patient's clinical symptoms to a physician immediately.[6]

Conflicts of interest

There are no conflicts of interest.

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REFERENCES

1. Celik SA. Nosocomial infections in neurosurgery Intensive Care Units. J Clin Nurs 2004;13:741-7.
2. Laborde G, Grosskopf U, Schmieder K, Harders A, Klimek L, Hardenack M, et al. Nosocomial infections in a neurosurgical Intensive Care Unit. Anaesthesist 1993;42:724-31.
3. Zubiete ED, Luque LF, Rodríguez AV, González IG. Review of wireless sensors networks in health applications. Conf Proc IEEE Eng Med Biol Soc 2011;2011:1789-93.
4. Darwish A, Hassanien AE. Wearable and implantable wireless sensor network solutions for healthcare monitoring. Sensors (Basel) 2011;11:5561-95.
5. Park G. Suggesting an Infection Causes Monitoring System Based on Wireless Sensor Network for Hospital Infection Control [Thesis]. School of IT Business Information and Communications: Univ. of Korea Advanced Institute of Science and Technology; 2008. Available from: http://www.library.kaist.ac.kr/thesis02/2008/2008M020064557_S1VerICC.pdf. [Last accessed on 2013 Nov 20].
6. Bastam M, Ramazanpourgryvdhy A, Ramazannezhads Z. Providing Intelligent Health Monitoring System Based on Wireless Sensor Network, Paper Presented at the First

International Congress on Health Information Technology Application 2011. Mazandaran, Iran: Mazandaran of Medical Sciences; 2011. Available from: http://www.mazums.ac.ir/Dorsapax/userfiles/file/it%20congress/20120523135329110.pdf20. [Last accessed on 2013 Nov 20].