Copper Surfaces Reduce The Rate Of Healthcare-Acquired ICU Infections

Placement of copper objects in intensive care unit (ICU) hospital rooms reduced the number of healthcare-acquired infections (HAIs) in patients by more than half, according to a new study published in the May issue of Infection Control and Hospital Epidemiology, the journal of the Society for Healthcare Epidemiology of America, in a special topic issue focused on the role of the environment in infection prevention.

In the United States, HAIs result in 100,000 deaths annually and add an estimated $45 billion to healthcare costs. HAIs often contaminate items within hospital rooms, allowing bacteria to transfer from patient to patient. Common microbes include methicillin-resistant Staphylococcus aureus (MRSA) and vancomycin-resistant Enterococcus (VRE). While several strategies have been developed to decrease HAIs, few have been clinically proven to reduce the spread of these infections. The researchers tested the capability of copper surfaces to reduce environmental contamination of these germs and thereby decrease HAIs in patients. Copper surfaces have an inherent ability to continuously kill environmental microbes on these surfaces.

The study was performed from July 12, 2010 to June 14, 2011 at three medical centers including the Medical University of South Carolina, the Memorial Sloan-Kettering Cancer Center, and the Ralph H. Johnson Veterans Affairs Medical Center. Patients who were admitted to the ICU of these hospitals were randomly assigned to receive care in a traditional patient room or in a room where items such as bed rails, tables, IV poles, and nurse's call buttons were made solely from copper-based metals. Both traditional patient rooms and rooms with copper surfaces at each institution were cleaned using the same practices.

The proportion of patients who developed HAI and/or colonization with MRSA or VRE was significantly lower among patients in rooms with copper surfaces (7.1%) compared with patients in traditional rooms (12.3%). The proportion of patients developing HAI was significantly lower among those assigned to copper rooms (3.4%) compared with those in traditional rooms (8.1%).

"Patients who suffer HAIs often stay in the hospital longer, incur greater costs, and unfortunately suffer a greater likelihood of dying while hospitalized," said Cassandra D. Salgado, MD, Associate Professor at the Medical University of South Carolina and lead author of the study. "Our study found that placement of items with copper surfaces into ICU rooms as an additional measure to routine infection control practices could reduce the risk of HAI as well as colonization with multidrug resistant microbes."

Previous attempts to reduce HAIs have required healthcare worker engagement or

use of systems such as ultraviolet light, which may be limited because of regrowth of organisms after the intervention. In contrast, copper alloy surfaces offer a passive way to reduce burden, without staff intervention or involvement with outside providers.

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