Complete sanitation of robotic surgical instruments virtually impossible

October 31 2016

It is virtually impossible to remove all contamination from robotic surgical instruments, even after multiple cleanings, according to a study published today in *Infection Control & Hospital Epidemiology*, the journal of the Society for Healthcare Epidemiology of America. The results show that complete removal of surface contaminants from these tools may be unattainable, even after following manufacturers' cleansing instructions, leaving patients at risk for surgical site infections.

"One of the top priorities for hospitals is to treat patients safely and with minimal risk of infection," said Yuhei Saito, RN, PHN, MS, lead author of the study and assistant professor at the University of Tokyo Hospital. "Our results show that surgical instruments could be placing patients at risk due to current cleaning procedures. One way to address this issue is to establish new standards for cleaning surgical instruments, including multipart robotic tools."

The study examined 132 robotic and ordinary instruments over a 21-month period. Instruments were collected immediately after use to determine their level of contamination. The researchers used in-house cleaning methods that included manual procedures with ultrasonication following the manufacturers' instructions. Measurements of protein concentration were collected from tools after three subsequent cleanings to determine changes in the total amount of residual protein.

Due to the complex structures of robotic instruments, these tools had a greater protein residue and lower cleaning efficacy compared to ordinary

instruments. The cleanings were 97.6 percent effective for robotic instruments and 99.1 percent effective for ordinary instruments. As a result, researchers suggest that it might be necessary to establish new cleaning standards that use repeated measurements of residual protein, instead of only measuring contamination once after cleaning.

"These instruments are wonderful tools that allow surgeons to operate with care; but completely decontaminating them has been a challenge for hospitals," said Saito. "By implementing new cleaning procedures using repeated measurements of the level of contamination on an instrument more than once, we could potentially save many patients from future infections."

More information: Yuhei Saito et al, Challenging Residual Contamination of Instruments for Robotic Surgery in Japan, *Infection Control & Hospital Epidemiology* (2016). DOI: 10.1017/ice.2016.249

Provided by Society for Healthcare Epidemiology of America