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Types of antibiotics and the risk factor for *Clostridium difficile* infection: Japanese study

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Background: Incidence of *Clostridium difficile* Infection (CDI) has increased in many countries. The previous use of antibiotics was pointed out as a possibility for increasing incidences of CDI. Some previous studies show that some types of antibiotics previously used, like clindamycin, broad spectrum cephalosporin, and fluoroquinolone, could significantly associated with the incidence of CDI. The amounts of each antibiotics used vary regionally. However, those studies were conducted in Western countries. In this study, we investigated which types of antibiotics previously used significantly associated with CDI at a single institution in Japan.

Methods & Materials: This study was carried out with all patients who were admitted to the Department of Internal Medicine of Teikyo University Hospital from April 2009 to June 2009, and of whom we had analyzed clinical data previously as another cohort study. Clinical data was obtained from medical records, and the results of *Clostridium difficile* toxins were collected until April 2012. CDI was defined as a detection of *Clostridium difficile* toxin from stool samples in diarrheal patients. Previous use of antibiotics was defined as use of antibiotics within one month before the onset of diarrhea. In each antibiotics, rates of CDI patients to diarrheal patients were compared.

Results: In the cohort of 1445 patients, *C. difficile* toxins were examined in 98 patients. Twenty-eight patients developed CDI, and 70 patients did not. Among the 28 CDI patients as cases, 25 patients (89.3%) had been administered with antibiotics, although among the 70 non-CDI patients as controls, 45 patients (64.3%) used antibiotics previously. Independent risk factors included: previous use of antibiotics (odds ratio [OR]: 4.63, 95% confidence interval [CI]: 1.38–15.58), carbapenem (OR: 4.39, 95% CI: 1.63–11.78), and especially meropenem (OR: 11.33, 95% CI: 2.83–45.40).

Conclusion: In diarrheal patients, CDI patients tended to use antibiotics before the onset. The rates of CDI among diarrheal patients differed with types of antibiotics previously used, and patients whom carbapenems, especially meropenem had administered tended to have CDI. In all diarrheal patients to whom carbapenems were given recently, *Clostridium difficile* toxin should be examined.

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Bacteriological study of the environment: The case of two university hospitals of CameroonH. Gonsu Kamga¹, E. Guenou², M. Toukam², C. Mbakop², N. Dongmo Tanke², M. Misse², S. Takongmo², F.-X. Mbopi-Keou³¹ University of Yaoundé I, Faculty of Medicine and Biomedical Science, Yaounde, Cameroon² Faculty of Medicine and Biomedical Sciences, University of Yaounde I, Yaounde, Cameroon³ Ministry of Health & University of Yaounde I, Yaounde, Cameroon

Background: In recent years, many studies have found a significant correlation between the contamination of the hospital environment and the recovery of bacteria in surgical patients. The high morbidity and mortality in these patients has been associated with exposure to these pathogens. Against this background, the bacteriological study of the environment of surgical units of two University hospitals in Cameroon was conducted to address the issue of nosocomial infections and their public health implications.

Methods & Materials: A descriptive cross sectional study was carried out from 1st June to 31st August 2012, on the bacteriological control of air, water and surfaces in surgical units of the University Teaching Hospital (UTH) and the Central Hospital (CH) of Yaounde in Cameroon. Data analysis was performed using Epi Info statistical software version 3.4.3. Significant level was set at $p < 0.05$ and a 95% confidence interval was also set.

Results: A total of 143 surface samples were collected. All surfaces samples revealed the presence of hospital germs after culture but not from a trolley and surgical cabinet surfaces. The predominant species in all departments was coagulase-negative *Staphylococcus* (57.43%) followed by Gram positive bacilli (14.18%), *Staphylococcus aureus* (8.10%), *Acinetobacter baumannii* (5.40%). The average number of colonies was 132.82 colonies/25cm². The germs isolated from the air were similar to those from insulated surfaces. Of the 16 cultured water samples, an average of 50.93 colonies/100 ml water was obtained and the distribution of isolated bacterial species showed a predominance of *Burkholderia cepacia*. These results provide strong arguments for considering the hospital environment as a potential reservoir and a direct source of nosocomial infections in surgical patients at the UTH and the CH of Yaounde in Cameroon.

Conclusion: We recommend to policy makers and health policy planners in Cameroon, to update guidelines and recommendations for microbiological monitoring of the environment in health care facilities.

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