Association Between Bacterial Load On The Operation Theatre Floor And Duration Of Surgery

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INTRODUCTION:
The degree of contamination of the operation theatre may influence the incidence of post-operative infections. This study evaluated the degree of contamination on the operation theatre floor, represented by bacterial load in regards to duration of surgery.

METHODOLOGY:
This study involved six sets of floor swab taken during knee or hip arthroplasty surgery. A set consisted of four swabs taken at different interval: (1) before the operations started (after floor cleaning), (2) 30 minutes, (3) 60 minutes and (4) 120 minutes after the operations has started. Swabs taken from the floor within one meter radius around the operation table using sterile cotton swab sticks, which were subsequently streaked on blood agar, before transported to the microbiology lab for incubation to determine number of bacterial colonies.

RESULTS:
The bacterial load on the operation theatre floor increased dramatically after 60 minutes operation started. Simple linear regression analysis demonstrated a statistically significant positive association between bacterial load and duration of surgery (p-value less than 0.001). All organism identified were gram positive cocci; 50.2% coagulase-negative staphylococcus and 49.8% staphylococcus aureus. No gram negative bacteria was identified.

DISCUSSIONS:
Occasionally during the operation, we inadvertently drop surgical instruments, implants or bone grafts on the floor, and decide to sterilize and continue utilising it. Questions that arise: Does the time when is it dropped play a role? Is it safe? Our study has shown that as operation progressed, the bacterial load on the floor amplified. An instrument that is dropped later on during the surgery has a greater risk of becoming contaminated, hence the risk of post-operative infection is greater. Nonetheless, the safety would also depend on the method of sterilization and nature of surgery. Likewise, surgical implants pose greater risk compared to instruments.

CONCLUSION:
There is a significant positive association between bacterial load on the operation theatre floor and duration of surgery.

REFERENCES:
1. Gebremariam et. al, Microbial load of operating theatre at Aydel Referring Hospital 2015:(9) 639-642