Use of an antimicrobial skin sealant reduces surgical site infection in patients undergoing routine cardiac surgery

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Background
With high morbidity and potentially devastating consequences, surgical site infections (SSIs) after cardiac surgery add substantially to the healthcare burden. Inhibiting migration of skin microbes is likely to reduce contamination of the surgical incision by endogenous potential pathogens. We studied the effect of treatment with a cyanoacrylate-based antimicrobial skin sealant (INTEGUSEAL®) on the SSI rate in cardiac surgery patients.

Methods
In a consecutive series of 910 prospective patients undergoing routine cardiac surgery, standard pre-operative preparation was performed on 721 patients of whom 189 also received antimicrobial skin sealant. A further 189 consecutive patients who received only standard pre-operative care were studied retrospectively. The primary study endpoint was occurrence of superficial or deep SSI according to the definitions of the U.S. Centers for Disease Control and Prevention.

Results
The mean (standard deviation) SSI risk score based on combined pre-operative and intra-operative factors according to the Society of Thoracic Surgeons risk scoring system was significantly higher for the skin sealant group (9.1±1.0) than for the prospective (7.1±3.2; p<0.001) and retrospective (8.7±0.8; p<0.001) control groups. Surgical site infections occurred in two patients (1.1%) in the sealant group, 33 patients (4.6%) in the prospective control group (p<0.025), and nine patients (4.8%) in the retrospective control group (p<0.032).

Conclusions
When added to existing pre-operative measures to reduce bacterial contamination of surgical incisions that are employed routinely at this cardiovascular surgery unit, use of antimicrobial skin sealant decreased the incidence of SSI in cardiac surgery patients.

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