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eComment. Accuracy of all reference citations

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I read with great interest the article by Birgand et al. regarding the results of their quasi-experimental single-centre prospective cohort study related to the efficacy of gentamicin-impregnated collagen sponges in preventing deep sternal wound infections in high-risk cardiac surgery patients [1].

I would greatly appreciate it, if the authors could explain the relation of their first reference by Barennes et al. to their very well presented data [2].

According to the International Committee of Medical Journal Editors, readers should be provided with direct references to original research work whenever possible. There is no need for large numbers of references. Small numbers of references to key or pivotal original articles often provide the appropriate volume of information [3]. In addition, citation errors sometimes appear in the published version of articles inadvertently [3].

Conflict of interest: none declared

References


eComment. Gentamicin-impregnated collagen sponge for high-risk cardiac surgery patients

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I read with great interest the paper by Birgand et al. regarding the use of gentamicin-collagen sponges in closure of sternal wounds in high-risk cardiac surgery patients to reduce the incidence of deep sternal wound infections [1]. They conducted a single-centre prospective cohort study enrolling 552 high-risk patients for sternal wound infection. The primary end-point, which is reoperation for deep sternal wound infection, occurred in 40/298 (13.8%) in the group without the antibiotic implants and in 22/175 (12.6%) in the treated group with the gentamicin-collagen sponges. The authors concluded that gentamicin-collagen sponges are not effective in preventing deep sternal wound infections in high-risk patients undergoing cardiac surgery.

Gentamicin-collagen sponges were introduced in 1985 for the prevention of surgical site infection and they are mainly used after laparotomy [2]. However, there is no consensus about their use in patients undergoing cardiac surgery [3]. A recently-published review of the literature and a meta-analysis showed conflicting results.

A best evidence topic in cardiac surgery concerning the use of gentamicin-collagen sponges to reduce wound infections was recently published in this journal [4]. The authors of this paper concluded that the use of this implant did not reduce the incidence of sternal wound infection in high-risk patients after cardiac surgery.

Recently, a meta-analysis of randomized controlled trials was performed by Mavros et al. [5]. Four randomized controlled trials were included in this meta-analysis. All 4 trials were considered of high quality (score of 3 or more according to the modified Jadad criteria). By pooling data provided by 4 published trials (4672 patients), gentamicin-collagen sponge use demonstrated a significant reduction in the rate of deep sternal wound infection (RR, 0.62; 95% CI, 0.39-0.97; P =0.04). Regarding the incidence of superficial sternal wound infection, gentamicin-collagen sponges use seemed to add no benefit (RR, 0.65, 95% CI, 0.34-1.25, P =0.20). Therefore, in view of the clinical implications of their findings from this meta-analysis, the authors suggest that routine prophylactic retrosternal placement of gentamicin-impregnated sponges reduces the incidence of deep sternal wound infection.

The implementation of this simple measure could bring particular benefits in high-risk patients. With the purpose of elaborating consensus guidelines for the best management of these high-risk patients, and to draw definitive conclusions, future studies with larger numbers of patients are required.

Conflict of interest: none declared

References


eComment. The devil is in the detail!

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I read with great interest the quasi-experimental single-centre prospective cohort study conducted by Birgand et al. [1] evaluating the efficacy of a gentamicin-collagen sponge in decreasing deep sternal-wound infections in high-risk cardiac surgery patients. Interestingly, in their experience gentamicin-collagen sponge was not effective in preventing deep sternal wound infections in high-risk patients. This is contrary to our own experience [2] and the most plausible explanation for the conflicting results lies in the technique of using the gentamicin-collagen sponge.

Birgand and associates dipped the sponge in normal saline solution for a few seconds prior to implantation [1]. This manoeuvre of wetting the gentamicin-collagen sponge impacts on the gentamicin content of the implant and affects its
potential antibacterial efficacy. Lovering and colleague [3] have recently shown that that even a short period of dipping of gentamicin-collagen sponge, before insertion into the patient, results in a significant loss of gentamicin which may be of clinical significance. They demonstrated that after a very short immersion period there was significant loss of gentamicin from the implants with a mean loss of 6.7% at 2 s, increasing to 40.5% at 1 min and essentially total loss by 6 h of immersion. Loss of gentamicin followed a complex elution profile, with elution half-lives ranging from 50 s on initial immersion to 99 min late in the elution period.

It is very clear from the study of Lovering et al. [3] as well as from our own experience [2] that attention to detail will possibly result in different outcomes thereby minimising studies with conflicting results.

Conflict of interest: none declared

References

