Finceramica

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THE BENEFIT OF ANTIBIOTIC-COMBINED MG-HYDROXYAPATITE BONE GRAFT SUBSTITUTE OVER AUTOLOGOUS BONE FOR SURGICAL SITE INFECTION PREVENTION IN POSTEROLATERAL SPINAL FUSION: A RETROSPECTIVE COHORT STUDY

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Material: SINTlife is an implantable, resorbable, non-active medical device, acting as bone substitute. SINTlife consists of biomimetic hydroxyapatite, enriched with magnesium ions that make the product, due to its chemical-physical properties, similar to the mineral component of human bones.

Intented Use IFU: spinal surgery applications, used in combination with antibiotics.

Keywords paper: antibiotic, bone graft substitute, magnesium-hydroxyapatite, prevention, spinal fusion, surgical site infection.

Background

A relatively infrequent but severe complication in spinal surgery is the occurrence of EIs. Retrospective cohort study. The authors' goal was to clarify whether a bone substitute combined with antibiotics might gain a hold in spinal surgery as a preventive treatment for early infections (EIs).

Methods

The authors retrospectively compared a population undergoing posterolateral fusion with Mg-enriched hydroxyapatite paste mixed with 60 mg rifampicin powder, with a matched population treated with autologous bone without antibiotics. A total of 30 patients from 2020 to 2021 were included in our study. We estimated EI's relative risk and the number needed to treat.

Results

No early infections occurred in the population treated with antibiotic-combined bone substitutes, compared with 6.7% of patients treated with autologous bone without antibiotics. The relative risk of EIs was 0.33 (P=.49; 95% CI= 0.01–7.58) and the number needed to treat was 15.

Conclusions

The results support the hypothesis that combining bone substitutes with antibiotics may decrease the risk of EIs and could be a viable option to improve spinal surgery outcomes. However, a larger sample size would be needed to confirm the benefit of rifampicin-combined Mg-enriched hydroxyapatite substitutes over autologous bone for surgical site infection prevention.

Take home messages:

- Early infections are relatively infrequent but severe complications in spinal surgery;
- We compared a population undergoing posterolateral fusion with a bone substitute combined with antibiotics, with a matched population treated with autologous bone without antibiotics;
- No early infections occurred in the population treated with antibiotic-combined bone substitutes, compared with 6.7% of patients treated with autologous bone without antibiotics;
- Combining bone substitutes with antibiotics may decrease the risk of EIs and could be a viable option to improve spinal surgery outcomes;
- A larger sample size would be needed to confirm the benefit of antibiotic-combined bone graft substitutes over autologous bone for early surgical site infection prevention.