

Presence of joint prosthesis is associated with increased risk for infection due to oral cavity bacteria

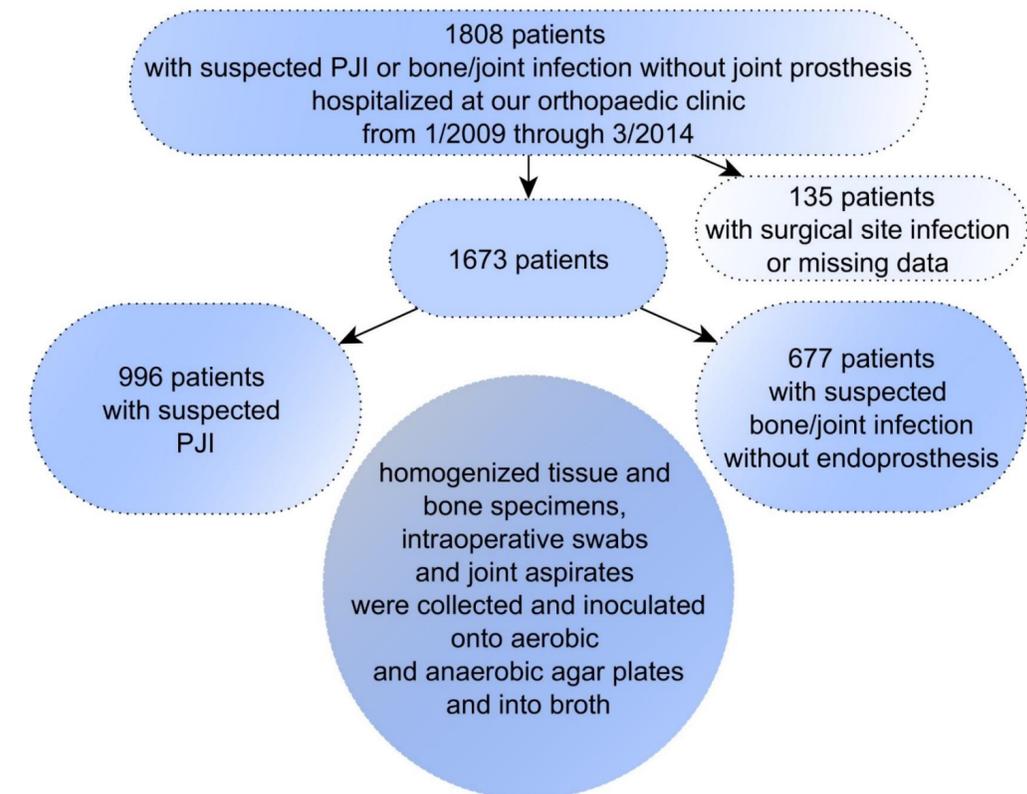
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INTRODUCTION

- The risk of haematogenic prosthetic joint infection (PJI) after dental procedures is discussed controversially.
- To our knowledge, no study has evaluated infections according to the origin of infection based on the natural habitat of the bacteria.
- The frequency of positive monomicrobial cultures involving bacteria from the oral cavity in patients with suspected PJI compared to bone and joint infections without joint prosthesis was therefore investigated.

METHODS

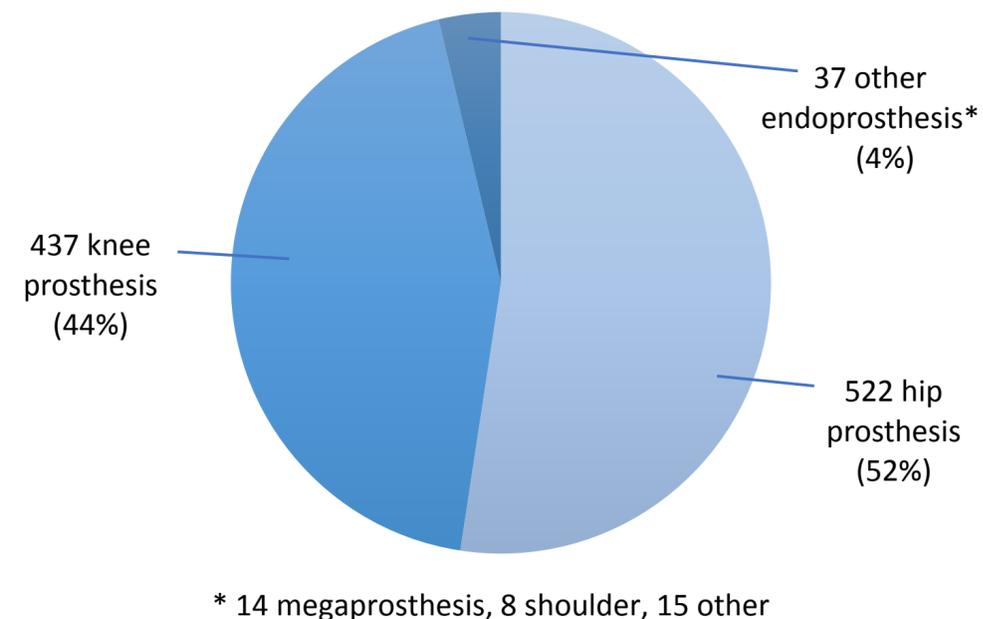


- In this retrospective study, demographic, clinical and microbiological data were collected using a standardized case report form. Groups were compared regarding infections caused by oral bacteria.
- χ^2 test or Fisher's exact test was employed for categorical variables and t-test for continuous variables.

RESULTS

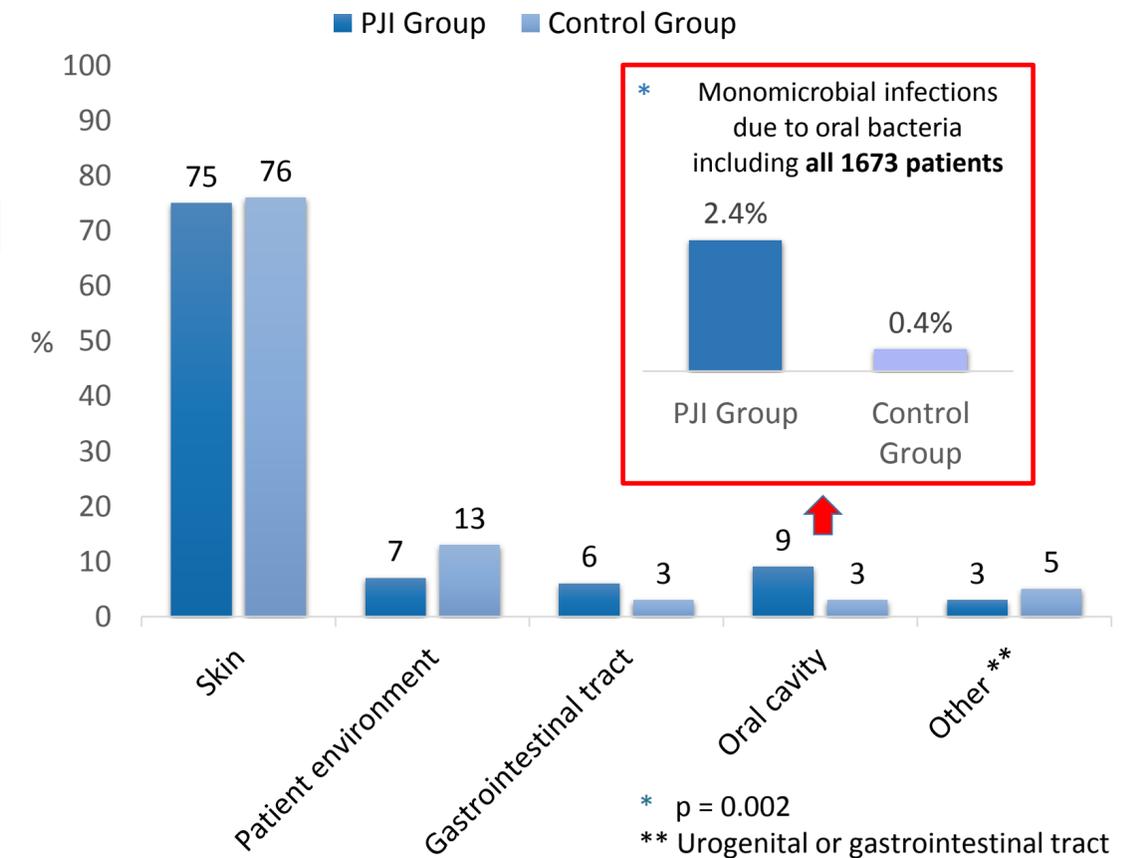
- A total of 1673 patients were included, of whom 996 (60%) had a suspected PJI and 677 (40%) osteoarticular infection without joint prosthesis (control group).
- In patients with suspected PJI the median age (standard deviation) was 67 (14) years; 407 (41%) were males.
- In 437 (44%) of PJI cases pathogens were detected, 271 (62%) were monomicrobial and 166 (38%) polymicrobial.

Figure 1: Anatomic location of the prosthesis of 996 patients with suspected PJI



- Of 271 monomicrobial periprosthetic infections, 24 (9%) were caused by bacteria belonging to the normal oral flora, predominantly oral streptococci (n = 21). This made 2,4% of all 996 patients with prosthesis. In contrast, only 3 (3%) of monomicrobial infections in the control group without joint prosthesis were caused by oral bacteria (0,4% of all 677 patients of the control group).
- This difference was statistically significant (p = 0.002), whereas the patient age (p = 0.058) and the anatomic location of the joint prosthesis (p = 0.622) did not have any effect on the oral bacteria.

Figure 2: Origin of 271 monomicrobial infections based on the natural habitat of the causative bacteria comparing both patient groups (PJI versus control group)



CONCLUSIONS

- The incidence of infections caused by oral bacteria was significantly higher in patients with joint prosthesis than in other osteoarticular infections (2.4% versus 0.4%).
- This finding indicates that joint prostheses are at risk of haematogenous infections originating from the oral cavity.
- Future prospective studies need to determine the exact risk of haematogenic PJI caused by oral bacteria, as well as the potential of preventing these infections by antibiotic prophylaxis.