ABSTRACT

Most prosthetic joint infections originate from wound contamination or haematogenous seeding from distant sites of infection. Bacteraemia may follow dental treatment but there is little evidence of it related to prosthetic joint infection. Nevertheless, controversy continues with regards to the effect of dental treatment in patients with prosthetic joints. This article reviews current English literature regarding the use of antibiotic prophylaxis in the dental management of patients with prosthetic joints. Routine antibiotic prophylaxis is not recommended for every patient with prosthetic joints when receiving dental treatments. However, antibiotic prophylaxis may be prescribed for high-risk groups with predisposing factors to infection when undergoing dental treatment with high risk of bacteraemia.

Key words: dental treatment, prosthetic joint, bacteraemia.

INTRODUCTION

Replacement of diseased joints started in the 1950s. Initially post-operative infection rates of 15 to 25% were reported (1-5). With intra-operative antibiotic prophylaxis, modern operation theatre designs and surgical techniques, prosthetic joint infection rate has dropped to 0.5 to 5% (6). The consequences of prosthetic joint infection are devastating, entailing prolonged hospitalisation and antibiotics, multiple surgeries, significant morbidity and mortality (7). Early prosthetic joint infections happen within 2 months of operation, mostly from direct inoculation or airborne contamination, while late infection after 2 months of operation is usually the result of haematogenous seeding or contagious spread. Bacteraemia from surgical and dental treatments has been implicated in late haematogenous spread (8,9). Understandable concern about the disastrous consequences of prosthetic joint infection has led to advocacy of prophylactic use of antibiotic before a dental procedure. However, it is important to recognise that routine use of prophylactic antibiotic has little supporting evidence, and is not without its own adverse effect.

DENTAL TREATMENT BACTERAEMIAS

The role of dental treatment bacteraemia as the source of prosthetic joint infection has been disputed. It has been suggested that bacteraemias can cause haematogenous seeding of total joint implants, both in the early postoperative period and for many years following implantation (10). It appears that the most critical period is up to two years after joint replacement (11). However, it has been shown that bacteraemias may occur in the course of normal daily life (12,13,14) and concurrently with dental and medical procedures (14). Guntheroth suggested that more oral bacteraemias are spontaneously induced by daily events than are dental treatment-induced (14).

The predominant pathogens in prosthetic joint infection are Staphylococcus aureus and Staphylococcus epidermis, accounting for 54% (15). These microorganisms are more commonly found on the epidermis. In contrast, the commonest human oral flora like Streptococci viridans and Peptostreptococcus are only implicated in 0.07% of prosthetic joint infection (16).

Ching et al., found 4 cases of infected joints due to streptococci viridans but they were related to acute oral infection, and not dental treatment-induced bacteraemia (17). Out of twenty-one reported prosthetic joint infections after a dental procedure or infection, Thyne & Ferguson found only one case close to meeting criteria of being related to dental treatment-induced bacteraemia (8). Bartzokas et al., reported 4 cases of prosthetic joint infection caused by S. sanguis of the viridans group, with same strain isolated from the mouth and from the infected prosthesis. However all these four cases had history of caries and periodontal disease and the prosthetic joint infections were thought not associated to dental treatment-induced bacteraemia (18).