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Prevalence and factors influencing post-operative complications following tooth extraction: Narrative review

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ADMINISTRATIVE INFORMATION

Support - This review will be self-funded.

Review Stage at time of this submission - Completed but not published.

Conflicts of interest - None declared.

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Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 06 April 2024 and was last updated on 06 April 2024.

INTRODUCTION

Review question / Objective To assess the prevalence and factors influencing post-operative complications following tooth extraction.

Rationale Dental extractions are well-established interventional procedures performed in many dental practices worldwide. A tooth extraction involves the removal of a tooth or parts thereof, which can range from simple to complex depending on a multitude of factors. Although they are generally considered safe procedures, some complications can arise following a tooth extraction. The incidence of these complications may vary according to specific patient-related, tooth-related, and clinician-related factors. Extractions are typically performed as part of the treatment plan for patients with extensive carious

lesions or periodontal disease. Previous studies demonstrate that certain factors can predispose a patient to a higher risk of post-operative complications and that they can be mitigated through the implementation of specific protocols.

Condition being studied Prevalence and factors influencing post-operative complications following tooth extraction.

METHODS

Search strategy Population
“pre-op* variable” OR “risk” OR “factor” OR “sex” OR “gender” OR “female” OR “male” OR “intersex” OR “non-binary” OR “ethnicity” OR “age” OR “elderly” OR “health*” OR “medically fit” OR “medically compromised” OR “disorder” OR “disease” OR “condition” OR “cardiovascular disease” OR “CVD” OR “osteopor*” OR

“bisphosphonate” OR “irradiat*” OR “radiotherapy” OR “cancer” OR “immunosuppress*” OR “rheumatoid arthritis” OR “RA” OR “anticoagulant” OR “chronic kidney failure” OR “diabet*” OR “glycaemic control” OR “medic*” OR “pharmac*” OR “drug” OR “smoking” OR “tobacco” OR “cigarette” OR “alcohol” OR “oral contracepti*” OR “simple” OR “complex” OR “surgical” OR “non-surgical” OR “tooth type” OR “third molar” OR “wisdom t**th” OR “arch” OR “maxilla*” OR “mandib*” OR “anaesthesia” OR “conscious sedation” OR “oral hygiene” OR “prophylaxis” OR “prevent*” OR “interven*” OR “mouth wash” OR “mouth rinse” OR “chlorhexidine” OR “CHX” OR “platelet-rich fibrin derivatives” OR “antibiotic” OR “amoxicillin” OR “tertiary” OR “student” OR “general dentist” OR “specialist” OR “surgeon” OR “follow-up” OR “systemic” OR “immunocompetent” OR “DMARD” OR “COPD” OR “chronic obstructive pulmonary\$” OR “anticoagulant” OR “anti-platelet” OR “autoimmune disease” OR

Intervention

Search 1: “exodonti**”

Search 2: “removal” OR “extract**” OR “surgery” AND “t**th” OR “dental” OR “third molar” OR “wisdom t**th” OR “surgical” OR “dentoalveolar” OR

Outcome

“safety” OR “danger” OR “outcome” OR “morbidity” OR “healing” OR “recovery” OR “wound” OR “defect” OR “sequalae” OR “complication” OR “impair**” OR “alveolar osteitis” OR “dry socket” OR “osteomyelitis” OR “abscess” OR “swelling” OR “o*dema” OR “cellulitis” OR “deep fascial space infection” OR “pain” OR “nerve” OR “neurosensory” “*sthesia” OR “bleeding” OR “haemorrhage” OR “haematoma” OR “trismus” OR “osteonecrosis” OR “*RONJ” OR “osteoradionecrosis” OR “ORN**” OR *oral antral communication” OR “OAC” OR “oral antral fistula” OR “OAF”.

Participant or population Patients over twelve years old receiving a dental extraction.

Intervention Either antibiotics, or chlorhexidine or other protective measures.

Comparator Usual standard of care.

Study designs to be included Cross-sectional studies.

Eligibility criteria Exclusion criteria: In vitro studies, animal studies, terminally ill patients, and tooth loss not due to dental extraction. Patients

receiving dental extraction will report post-operative complications.

Information sources An electronic search of the literature will be performed using the following databases: PubMed, Web of Science.

Main outcome(s) Post-operative complications.

Quality assessment / Risk of bias analysis Due to the scope of our narrative review and its associated objectives, the quality of cross-sectional studies (AXIS) will be conducted from the studies outlining the prevalence.

Strategy of data synthesis After removing duplicate records, we will analyse 201 references for the purpose of this narrative review, but we have included 20 articles for the prevalence of the post-operative complication. Relevant results will be tabulated but most will be qualitatively described.

Subgroup analysis Numerous factors influence post-operative complications in dental extractions, highlighting the complex relationship between systemic health and dental outcomes. Health conditions like HIV, Cushing's syndrome, anaemia, malnutrition, arthritis, asthma, bleeding disorders, cancer treatments, cardiovascular disease, chronic kidney disease, and diabetes mellitus can lead to delayed wound healing and infection. Non-disease factors like age, sex, smoking habits, and alcohol consumption also affect post-extraction healing. Medications and oral hygiene also play a role.

Sensitivity analysis This was not required as it was a narrative review.

Country(ies) involved Australia.

Keywords Dental extraction, Post-operative complications, Alveolar osteitis, Predisposing factors, Patient-centred care, Dentistry, Oral Surgery.

Dissemination plans This will be published in the International Journal of Dentistry.

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