Management of dental patients who are HIV-positive: complications

Authors' objectives
To address the following questions:

Q1. Were patients with the human immunodeficiency virus or acquired immune deficiency syndrome (HIV/AIDS) at increased risk of complications from intra-oral dental procedures as compared with similar patients without HIV/AIDS?

Q2a. What were the sensitivity, specificity, and positive and negative predictive values of oral conditions as markers of recent HIV seroconversion?

Q2b. What were the sensitivity, specificity, and positive and negative predictive values of oral conditions as indicators of severe immunosuppression?

Q3a. What was the efficacy of antifungal treatments as prophylactic measures for oral candidiasis in HIV-positive patients?

Q3b. What was the effectiveness of currently available antifungal treatments as treatment for oral candidiasis in HIV-positive patients?

This abstract addresses the review pertaining to question 1; the review pertaining to questions 3a and 3b is summarised in another DARE abstract.

Searching
MEDLINE and EMBASE were searched for publications in English, and the Cochrane Library was reviewed manually. The following journals were handsearched for the most recent 12 months (through spring 2000): Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology and Endodontics, Journal of Oral Pathology and Medicine, Oral Diseases, AIDS, and Journal of Acquired Immune Deficiency Syndromes and Human Retrovirology. There were no date restrictions on the searches, and the search terms were listed in the review. Only English language papers were eligible for inclusion.

Study selection
Study designs of evaluations included in the review
Studies described as controlled clinical trials, randomised controlled trials, multicentre studies, epidemiologic research, comparative and evaluation studies, outcome and process assessment, outcome assessment, or treatment outcome were eligible for inclusion.

Specific interventions included in the review
Studies of intra-oral surgical dental procedures, including orthognathic, periodontal, extractions, endodontics, prophylaxis, scaling and root planning, and implants were eligible for inclusion. However, only studies on dental extractions and endodontics (root canal treatment) were identified and, therefore, included in the review.

Participants included in the review
Studies that compared HIV-positive patients (confirmed by test results) with HIV-negative patients were eligible for inclusion.

Outcomes assessed in the review
Studies that reported complications of intra-oral surgical dental procedures, including local infection, systemic infection, increased bleeding, dry socket (alveolitis) and delayed healing were eligible for inclusion. Studies that did not
report complications according to patient group and procedure were excluded.

How were decisions on the relevance of primary studies made?
Two reviewers independently assessed titles and abstracts for inclusion in the review. Another reviewer assessed the abstracts of the excluded studies to ensure that no studies were incorrectly excluded.

Assessment of study quality
The authors developed a quality-rating form, based on the criteria used by the Research Triangle Institute, University of North Carolina at Chapel Hill, Evidence-Based Practice Centre. The checklist considered the nature and size of the sample, analysis issues, and measurement and validity concerns. The authors did not state how many reviewers performed the quality assessment.

Data extraction
One reviewer extracted the data using specially designed forms, while a second reviewer checked the extraction. Unadjusted complication rates and, where reported, relative risks and 95% confidence intervals were extracted.

Methods of synthesis
How were the studies combined?
The studies were combined in a narrative according to the type of intervention.

How were differences between studies investigated?
Between-study differences were apparent from the tabulated study details and were discussed in the text.

Results of the review
Five studies compared complication rates associated with similar dental treatment in HIV-positive and HIV-negative patients: two prospective cohorts (n=215) and three retrospective cohorts (n=309).

Complication rate of endodontics.
One retrospective study found the immediate post-operative complication rate of endodontics to be very low in the HIV-positive group (1 out of 48) and non-existent in the HIV-negative group. The patient experienced pain and swelling following the initial root canal treatment.

Complications with dental extractions.
Three of the four studies investigating complications with dental extractions found no statistically significant differences between HIV-positive and HIV-negative patients, although more post-operative complications were found with the HIV-positive patients. One study found HIV-positive patients to have a statistically significant increase in complication rate; however, when adjusting for risk factors the difference was no longer significant. None of the four studies identified a need for special precautions to be taken with HIV-positive patients who did not have a coagulopathy and were sufficiently healthy to be seen on an out-patient basis.

Authors' conclusions
There were few data relating to the complications of oral procedures among people with HIV/AIDS. Based on the available findings, there was little evidence of unusual rates or severity of complications for these procedures among people with HIV/AIDS.

CRD commentary
The authors addressed a precise question with specific inclusion criteria relating to the intervention, outcome, study design and patient group. Although searches for published studies involved databases and handsearches, there was no
attempt to seek unpublished studies and the potential for publication bias was not assessed. Language bias might also have influenced the findings. Attempts were made to minimise selection bias and reviewer error in the study selection and data extraction processes. It was unclear if the authors used the quality grading of the included studies to inform their discussion of the findings, which were discussed in a narrative synthesis. It was unclear from the review why the complication rates for dental extraction from the primary studies were not pooled in a meta-analysis; a discussion of the clinical diversity and statistical heterogeneity of the studies would have been helpful.

The conclusions were based on limited evidence from weak study designs and must, therefore, be interpreted carefully.

**Implications of the review for practice and research**

**Practice:** The authors did not state any implications for practice.

**Research:** The authors stated the need for more studies on extractions and endodontics, and also of other types of dental treatments, using better study designs with large samples and multivariate analyses. Improvement in the measurement and reporting of complications, post-procedural compliance, and antibiotic and antiretroviral use is also needed.

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This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.