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**Study:**

# Clinical research activity in periodontal medicine: a systematic mapping of trial registers

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**Relevant background:**

“Periodontal medicine” is a concept that emerged in the 1990s, which has subsequently established a two-way relationship between periodontal diseases and overall health. Until now, the most investigated systemic diseases linked to periodontal diseases have been cardiovascular disease and diabetes,

along with adverse pregnancy outcomes. Other associations have also been suggested but their evidence remains weak. Therefore, several clinical trials are taking place to assess the magnitude of these associations and the impact of periodontal treatment on systemic conditions.

**Study aims:**

The aim of this study was to evaluate the topics of current clinical trials related to the field of periodontal medicine and to assess the evolution of periodontal medicine in clinical periodontal research.

**Methods:**

An electronic search was conducted in the ICTRP platform (World Health Organization International Clinical Trials Registry Platform). Any registration record not directly dealing with clinical periodontal research was excluded. Trials and observational studies were included and classified into four categories:

- Category A: Periodontal intervention to improve (or prevent) a systemic condition;
- Category B: Intervention for a better understanding of the links between oral and overall health (B1) or Observational study of a possible link between periodontal disease and a systemic condition (B2);
- Category C: Periodontal intervention to improve oral health;
- Category D: Observational studies in periodontal research, without systemic assessment.

Categories A and B relate to periodontal medicine, whereas the two other categories concern “periodontal dentistry”, which deals with periodontal health at mouth-level only. The different studies were then linked to the Mesh terms falling under the categories labelled “Diseases” and “Phenomena and processes”. Chord diagrams were used to illustrate the proportions of the most investigated systemic diseases in relation to the study’s categories (A to D). The temporal evolution of topics dealing with periodontal medicine (emerging trends by period) was also revealed via another chord diagram.

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**Results:**

A total of 822 records were selected, of which 242 (29.5%) dealt with periodontal medicine. Of these, none was associated with the term “implantitis”. Fifty-seven systemic conditions have been hypothesised to be linked with periodontal diseases, covering 1.95% of the Mesh terms. The most investigated systemic diseases in order of descending frequency were: nutritional and metabolic diseases; pathological conditions (e.g. dyspepsia, inflammation...); female urogenital diseases and pregnancy complications; cardiovascular diseases; musculoskeletal diseases; and male urogenital diseases.

These conditions were not addressed equally and major, intermediate, and minor topics could be distinguished. Between 2012 and 2015, the most investigated systemic diseases were: musculoskeletal diseases; cardiovascular diseases; female urogenital diseases and pregnancy complications; pathological conditions; and nutritional and metabolic diseases. The annual growth rate of records in periodontal research showed that there was no significant difference between periodontal medicine (35%) and periodontal dentistry (39%).

**Limitations,  
conclusions  
and impact:****Limitations:**

- All registration records were considered as having the same level of methodological quality (there is no consensus on how to assess the quality of registration records).
- Only half of the existing biomedical journals have adhered to the investigated clinical trial registry platform (ICTRP) and only one quarter of randomised controlled trials (RCT) published in oral-health-related journals are publicly registered. Consequently, this analysis might have underestimated the number of systemic conditions.
- Only registration records, which had not been peer-reviewed, were considered.
- This study does not distinguish between the links between systemic conditions and periodontal diseases that have already been strongly supported by evidence and the links that so far have no or limited support.

**Conclusions:**

Research in periodontal medicine is a very active field within periodontology. This up-to-date snapshot reveals that there are numerous systemic conditions that have been hypothesised to be linked with periodontal diseases, which suggests common pathophysiological mechanisms.

**Impact:**

This study emphasises the need to come up with well-designed observational studies and RCTs with patient-centred outcomes in order to establish more significant links between systemic and oral health. It is also necessary to classify all the accumulated knowledge on periodontal medicine via a realist synthesis.