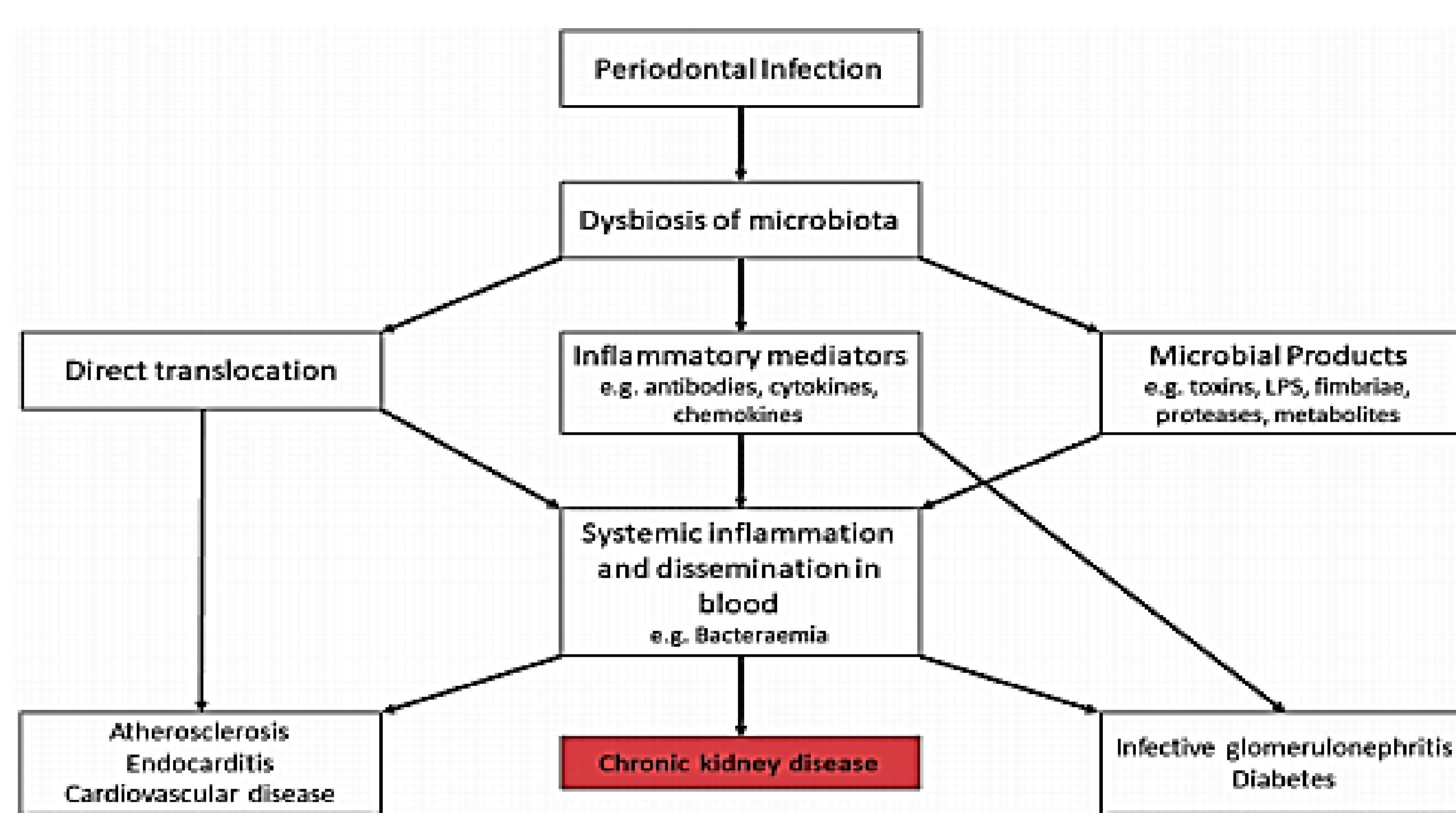


INTRODUCTION

Periodontal diseases, are chronic inflammatory diseases of infectious origin affecting the tooth-supporting tissues with high prevalence as 46% of the US population is affected . Chronic periodontitis is the most common type of periodontitis that exhibits a wide range, in terms of severity, from mild to severe forms. Severe form affects about 11% of the world population. This disease progresses slowly over decades and is influenced by several risk factors, such as age, socioeconomic conditions, educational level, smoking, stress, and several diseases affecting the host immune response such as diabetes. In last decades, an association between periodontitis and systemic diseases, such as cardiovascular diseases or metabolic syndrome, has been reported. Chronic kidney disease is defined as either the presence of kidney damage or a decreased kidney function (glomerular filtration rate [eGFR]). It is an irreversible disease, affecting 13% of the general population and considered a major cause of mortality and morbidity worldwide. Therefore, the identification of new risk factors is extreme importance. The aim of this systematic review was to evaluate the association between periodontitis and CKD and identify the most at-risk patient’s profile. The impact of periodontal treatment on several renal biomarkers of CKD was also determined.



The systemic diseases linked with periodontal disease and putative mechanisms behind their relationship.

METHODS AND MATERIAL

The studies that met the following inclusion and exclusion criteria were eligible for this systematic review. Inclusion criteria were: (i) cross-sectional studies, cohort studies or case-control studies; (ii) adult population; (iii) at least 20 subjects in the case group; (iv) definition of CKD based on related serum and/or urine parameters, or no definition of CKD but instead reporting of estimated glomerular filtration rate (eGFR); v) definition of periodontitis based on at least 1 of clinical periodontal parameters, such as community periodontal index (CPI), clinical attachment loss or periodontal probing depth.

METHODS AND MATERIAL (CON.)

Exclusion criteria were: (i) prevalence/incidence or effect estimate not reported or not able to be calculated; (ii) self-reported periodontitis or CKD; and (iii) kidney transplant recipients and patients with any other forms of kidney disease. The publications were collected through PubMed and Rutgers University Library. Studies were in period between 2013-2017. Among 30 studies were collected, only 23 studies represent the relation between periodontitis and Kidney disease.

RESULTS

Author (publication year)	Study design	Sample size	Definition of CKD	Definition of periodontitis	results	Title
Liu et al (2013)	Cross-sectional study (periodontitis as the exposure and CKD as the outcome)	1268	eGFR <60 mL/min/1.73 m ² or UACR ≥30 mg/g or ≥3 red blood cells per high-power field (×400)	Periodontitis ≥2 interproximal sites with ≥3 mm CAL and ≥2 interproximal sites with ≥4 mm PPD (not on the same tooth) or 1 site with ≥5 mm	259 (20.4%) had CKD	Prevalence and risk factors of CKD in Chinese patients with periodontal disease
de Souza et al (2014)	Cross-sectional study (CKD as the exposure and periodontitis as the outcome)	122	Hemodialysis patients	CAL ≥5 mm in at least 3 teeth in at least 2 quadrants	73 (59.8%) had periodontitis	Association among oral health parameters, periodontitis, and its treatment and mortality in patients undergoing hemodialysis

CONCLUSION

This systematic review evaluates the evidence on associations of periodontitis with CKD. The findings from the eligible studies indicate that there is supporting evidence on a link between the 2 diseases. On the contrary, there are few studies needed to clarify whether the presence of periodontitis could be a critical risk factor for the development of CKD and its complications. Prospective studies in representative communities with longer follow-ups should be conducted to enhance the level of evidence in the future.

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