The Association Between Rheumatoid Arthritis and Periodontitis

By Vanessa Caceres [3]

Rheumatoid arthritis and periodontitis seem to be related, shows a new study that also highlights other commonalities between the two diseases.

The connection between rheumatoid arthritis and periodontitis appears to be strong, according to a systematic review and meta-analysis of studies that compared participants with rheumatoid arthritis to healthy controls.

Published in the March 2 issue of Frontiers in Immunology, the analysis includes 17 studies (153,492 participants) that compared rheumatoid arthritis patients to healthy controls, and four studies (1378 participants) that compared rheumatoid arthritis to osteoarthritis.

“There was a statistically significant greater risk of periodontitis for people with RA compared with healthy comparable cohorts,” wrote the authors who were led by Nicholas R. Fuggle of St. George’s University in London. “Those with RA had a 13% greater risk of periodontitis compared to the non-RA cohort, ranging from 4 to 23%.” Those with rheumatoid arthritis had a significantly greater risk for bleeding on probing, gingivitis, mean loss of teeth, and periodontal bone loss.

Rheumatoid arthritis and periodontitis are both associated with the presence of citrullinated proteins, which are associated with peptidyl arginine deiminase which, in turn, is produced by the microbe Porphyromonas gingivalis (P. gingivalis). Researchers have long hypothesized that P. gingivalis was at the root of the connection between periodontal disease, citrullination and rheumatoid arthritis.

Epidemiological studies have demonstrated a strong link between rheumatoid arthritis and periodontitis, which is associated with a higher risk of stroke, cardiovascular disease and pneumonia. Other studies have also shown that periodontitis responds to rheumatoid arthritis treatment. Other connections include T cell activation, inflammatory cytokines and bone destruction and deformity.

The findings as reported in the study: “There was a significant greater risk in the RA group as compared to the non-RA group (RR: 2.65; 95% CI: 1:00, 7.02; p = 0.05); gingivitis index (MD: 0.30; 95% CI: 0.20, 0.41), mean loss of teeth (MD: 2.46; 95% CI: 0.30, 4.63), and periodontal bone loss (RR: 2.00; 95% CI:1.40, 2.88). There was also a significant difference between the RA and non-RA cohort for probing depth with the RA cohort demonstrating a 0.69-mm greater probing depth than the non-RA cohort (MD: 0.69; 95% CI: 0.26, 1.12).”

The researchers did not find a significant risk difference for periodontitis between those with rheumatoid arthritis and those with osteoarthritis.

Limitations of the current study include different definitions of disease among studies; some studies did not provide information on treatment regimens for rheumatoid arthritis. Further studies are needed to shed light on the meta-analysis findings, the study authors concluded.

References:
3. Fuggle NR, Smith TO, Kaul A, Sofat N. Hand to mouth: A systematic review and meta-analysis of the association between...
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