Healthy mother, healthy baby

Periodontitis has been associated with increased risk of adverse pregnancy outcomes, such as preterm low birth weight babies. Each year over 400 000 infants are born prematurely as a result of preterm labour, preeclampsia and other adverse events (1). Scientists and physicians have known that maternal infection is a risk factor for adverse pregnancy outcomes, but the focus has been on intrauterine infection and bacterial vaginosis. The mechanism by which maternal infection triggers early delivery is unclear, but may include the maternal and fetal inflammatory and humoral responses. Genetic variation in response to these infections may also be a factor in the risk for prematurity (2).

Recently, researchers have been analysing the role of *subclinical* maternal infection in preterm labour. Evidence to support this theory includes the following: increased histological chorioamnionitis in preterm births; greater numbers clinical infection after preterm birth; a significant association between several lower genital tract organisms and infections and preterm birth or preterm premature rupture of the membranes; positive cultures of amniotic fluid or membranes from some women with preterm labour and preterm birth; infection markers seen in preterm birth; induction of preterm birth in animal models by bacteria or their products; and results in some clinical trials that antibiotics lessen the rate of preterm birth or can delay preterm birth (3).

New studies suggest that chronic oral infections, such as periodontal diseases, may contribute to preeclampsia, preterm birth, fetal growth restriction and fetal loss (4–6). It has also been noted that pregnant women with periodontitis had 65% higher C-reactive protein (CRP) levels compared to healthy women (7). CRP is secreted by the liver in response to inflammation, and CRP blood levels are a marker of systemic inflammation.

One hypothesis is that elevated CRP may be caused by periodontal infection and inflammation, and the CRP could amplify the inflammatory response and eventually cause adverse pregnancy outcomes. Otherwise, periodontal disease and CRP may share a mutual risk factor for predisposing individuals to a hyperinflammatory response. The researchers clearly state that the association between CRP and periodontitis in pregnancy detected in the study may or may not be causal (7).

Past studies examining the relationship between periodontal disease and CRP found that often after non-surgical periodontal therapy or debridement, CRP levels decrease (8). So, could we reduce the number of preterm births by our instrumentation? We know that transient bacteraemias occur in individuals with periodontitis or with gingivitis, and it is likely that bacteria may migrate to the placental membranes through the blood stream and provide the inflammatory outcome to stimulate preterm labour. Periodontal treatment significantly reduced the preterm/low birth weight (PLBW) rate in this population of women with pregnancy-associated gingivitis (9). Within the limits of this study, we can assume that gingivitis appears to be an independent risk factor for PLBW for this population (9).

In addition, promoting the health and wellness of women and couples before pregnancy improves birth outcomes (http://www.marchofdimes.com/). Research and clinical guidelines have identified 14 areas in which preconception care could help promote healthy pregnancies. Recent research is providing some intriguing suggestions that *oral* health is impacted negatively by some infertility treatments, and poor oral hygiene may actually be a factor in infertility (10). While these studies are in their infancy, when considered with other evidence about the oral/systemic link, we may want to reorganize our thoughts about this probable link between oral health and general health, including fertility issues.

The take-home message here is that periodontal infections can perhaps be linked to preconception issues and preterm low birth weight babies. Even in the absence of causal evidence, what is the downside of encouraging optimal oral health before and during pregnancy? In my opinion…there are none!

Author's note: For more information on prematurity, visit: http://www.marchofdimes.com/.

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