Effect of estradiol on planktonic growth, coaggregation, and biofilm formation of the *Prevotella intermedia* group bacteria

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**BACKGROUND**

Alterations in the quantity and quality of biofilms at gingival margin are considered to play a role in the initiation and development of pregnancy-related gingivitis. *Prevotella intermedia* sensu lato is able to consume estradiol, the major sex hormone secreted during pregnancy, in the absence of vitamin K.

**AIMS**

To examine the effect of estradiol on the planktonic growth, coaggregation, polysaccharide production, and biofilm formation of the *P. intermedia* group bacteria, namely *P. intermedia*, *Prevotella nigrescens*, and *Prevotella pallens*.

**MATERIALS & METHODS**

Type strain (ATCC) and a clinical strain (AHN) of *P. intermedia*, *P. nigrescens*, and *P. pallens* were incubated with the concentrations of 0, 30, 90, and 120 nmol/L of estradiol. Planktonic growth was assessed by means of the colony forming unit method, while coaggregation and biofilm formation were assessed by spectrophotometric methods. In the determination of protein and polysaccharide levels, the Bradford and phenolsulfuric acid methods were used, respectively.

**RESULTS**

1. **PLANKTONIC GROWTH**

2. **COAGGREGATION**

3. **PROTEIN PRODUCTION**

4. **POLYSACCHARIDE ASSAY**

**CONCLUSIONS**

These in vitro experiments indicate that estradiol regulates planktonic growth, coaggregation, polysaccharide production, and biofilm formation characteristics of *P. intermedia*, *P. nigrescens*, and *P. pallens* differently. These results may, at least partly, explain the differences seen in their contribution to the pathogenesis of pregnancy-related gingivitis.

**REFERENCES**


