

# RAISED SALIVARY INFLAMMATORY BIOMARKERS IN GESTATIONAL DIABETES MELLITUS: A REVIEW

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## INTRODUCTION

Gestational diabetes mellitus (GDM) is defined as glucose intolerance of varying degrees of severity with onset or first recognition during pregnancy. Chronic inflammation has been implicated in the pathogenesis of GDM. Global prevalence of GDM was 14.7% based on the International Association of Diabetes and Pregnancy Study Groups (IADPSG) criteria<sup>1</sup>.

Saliva is an exocrine secretion of the salivary glands mainly composed of water (99%), along with electrolytes, proteins, lipids and enzymes which are undergoing constant exchange with blood by passive diffusion and/or by active transport. Therefore the use of saliva as an alternative diagnostic tool is advisable as its collection is non-invasive, cost effective and possibly stress free.

## OBJECTIVE

To assess the relationship between salivary inflammatory biomarkers and GDM.

## METHODOLOGY

Databases searched in PubMed from 2011 to January 2024. PICOS framework, Participant: Pregnant females, Intervention/phenomenon of interest: GDM, Comparison: Salivary Inflammatory biomarker level in pregnant females who are GDM+/obese and GDM-/normal weight, Outcome: Abnormal salivary inflammatory biomarker level in GDM, Study: observational studies. Search filter was set to human subjects and language restricted to English. Reference from systemic reviews were also checked manually for further screening.

## RESULT

Author, year, country, study design	Investigation group	Evaluated Biomarker	Outcomes
Gumus et al, 2014, turkey, cross sectional	Pregnant (167), GDM+vt (101), GDM-vt (66), subgroups +/- Gingivitis	IL-6, IL-8, RANKL, OPG, APRIL, BAFF	Saliva RANKL were ↑ in GDM+ve, IL-6, APRIL, RANKL ↑ in GDM+ve with gingivitis (p<0.05)
Zambon et al, 2018, Italy, cross sectional	Pregnant (62), normal weight (NW) (27), obese (35)	TAC, CRP	↑ in salivary TAC and CRP in obese (GDM) (p=0.000). obese with periodontitis showed ↑ in all parameters verses (NW)
Surdaka et al, 2011, Poland, cross sectional	Pregnant (63), GDM (30), healthy (33)	TAC, IL-8, IL-6, TNFα, TNF-R1/2, IL-17, MCP-1, VEGF	GDM group ↑ in MCP-1, IL-8, IL-6, TNF-R1/R2, VEGF (p<0.05), GDM group have ↑ in periodontal indexes
Foratori et al, 2021, Brazil, prospective cohort study	Pregnant (50), Obese (25), normal weight (25)	IL-1β, TNF-α, leptin	Obese women have ↑ salivary levels of TNF-α (p=0.003), IL-1β (p=0.009), ↑ prevalence of periodontitis, low birth weight (p=0.022)

## DISCUSSION

In our review we observed a greater degree of heterogeneity between studies in terms of study design, methodology and examined biomarker. However we found an overall significant association between raised salivary inflammatory biomarkers and GDM which opens the scope for further studies with adequate sample size and well-matched subjects to derive more standardized statements. With increasing prevalence of GDM (11.4%) in South Asia compared to the rest of the world (3.6–6.0%)<sup>3</sup> and its recognized association with adverse pregnancy outcomes, GDM demands a specific, sensitive, convenient screening tool, adjunctive to serum. Our review provides an overview of the promising role of salivary inflammatory biomarkers for this.

## CONCLUSION

Saliva being a biofluid can serve as a mirror for rest of the body both in health and diseases. GDM is a disease of the modern world, and salivary inflammatory biomarkers provide a convenient, cost effective, noninvasive and stress-free alternative to frequent serum examinations.

## REFERENCES

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