

Home > Journal > Medicine & Healthcare > OJOG

[Indexing](#) [View Papers](#) [Aims & Scope](#) [Editorial Board](#) [Guideline](#) [Article Processing Charges](#)

OJOG > Vol.3 No.1, January 2013

OPEN ACCESS

Comparison of Glycated Albumin (GA) and Glycosylated Hemoglobin (A1C) in monitoring glycemic excursions during pregnancy

PDF (Size: 135KB) PP. 47-50 DOI : 10.4236/ojog.2013.31011

Author(s)

Veeraswamy Seshiah, Vijayam Balaji, Ashalatha Srinivasan, Madhuri S. Balaji, Arthi Thiyagarajah

ABSTRACT

Objective: To compare GA with A1C in monitoring glycemic excursions during pregnancy. **Research Design and Methods:** This study included 30 women with Gestational Diabetes Mellitus (GDM) and an equal number with Normal Glucose Tolerance (NGT). GDM were followed up every 2 weeks till 36 - 37 weeks and NGT were reviewed monthly once. Fasting Plasma Glucose (FPG), Postprandial Plasma Glucose (PPG), Ferritin, GA and A1C were estimated. GDM were advised Medical Nutritional Therapy (MNT). Target glycemic control was FPG ~ 5 mmol/L and 2 hr PPG ~ 6.6 mmol/L. Non-responders to MNT were administered insulin. **Results:** In GDM, mean FPG was 5.16 ± 0.55 mmol/L in the first visit and 4.73 ± 0.52 mmol/L in the last visit. The PPG at first visit was 7.07 ± 1.51 mmol/L and 6.16 ± 0.70 mmol/L in the last visit. The mean GA was $12.48\% \pm 0.8\%$, $12.51\% \pm 0.9\%$, $12.40\% \pm 1.0\%$, $12.30\% \pm 0.86\%$ and $12.38\% \pm 0.87\%$ at the first, second, third, fourth and fifth visit respectively. The mean A1C at first, third and fifth visits was $5.16\% \pm 0.35\%$, $5.24\% \pm 0.29\%$ and $5.21\% \pm 0.28\%$ respectively. In NGT women, mean FPG at first visit was 4.37 ± 0.37 mmol/L and 4.39 ± 0.43 mmol/L in the last visit. The mean PPG was 5.95 ± 1.01 mmol/L in the first visit and 5.75 ± 1.61 mmol/L in the last visit. The mean GA was $12.17\% \pm 0.85\%$ in first visit and $12.10\% \pm 0.77\%$ in the last visit. A1C was $4.84\% \pm 0.31\%$ and $4.91\% \pm 0.33\%$ in the first and last visit respectively. **Conclusions:** Glycemic control was observed earlier with GA than A1C. GA is a better indicator of recent past short-term glycemic control in GDM.

KEYWORDS

GDM; NGT; GA; A1C; GW; MNT; BMI

Cite this paper

Seshiah, V. , Balaji, V. , Srinivasan, A. , Balaji, M. and Thiyagarajah, A. (2013) Comparison of Glycated Albumin (GA) and Glycosylated Hemoglobin (A1C) in monitoring glycemic excursions during pregnancy. *Open Journal of Obstetrics and Gynecology*, 3, 47-50. doi: 10.4236/ojog.2013.31011.

References

- [1] The Confidential Enquiry into Maternal and Child Health (CEMACH) (2005) Pregnancy in women with type 1 and type 2 diabetes in 2002-2003, England Wales and Northern Ireland. CEMACH, London.
- [2] Expert Committee on the Diagnosis and Classification of Diabetes Mellitus (2003) Report of the expert committee on the diagnosis and classification of diabetes mellitus. *Diabetes Care*, 26, S5-S20. doi: 10.2337/diacare.26.2007.S5
- [3] Dornhorst, A. and Rossi, M. (1998) Risk and prevention of type 2 diabetes in women with gestational diabetes. *Diabetes Care*, 21, B43-B49.
- [4] McCance, D.R., Pettitt, D.J., Hanson, R.L., Jacobsson, L.T., Knowler, W.C. and Bennett, P.H. (1994) Birth weight and non-insulin dependent diabetes: Thrifty genotype, thrifty phenotype, or surviving small baby genotype? *British Medical Journal*, 308, 942-945. doi: 10.1136/bmj.308.6934.942
- [5] Mello, G., Parretti, E., Mecacci, F., Lucchatti, R., Cianciulli, D., Lagazio, C., Pratesi, M. and Scarselli, G.

- [Open Special Issues](#)
- [Published Special Issues](#)
- [Special Issues Guideline](#)

[OJOG Subscription](#)

[Most popular papers in OJOG](#)

[About OJOG News](#)

[Frequently Asked Questions](#)

[Recommend to Peers](#)

[Recommend to Library](#)

[Contact Us](#)

Downloads: 52,685

Visits: 129,056

[Sponsors >>](#)

- (1997) Anthropometric characteristics of full-term infants: Effects of varying degrees of normal glucose metabolism. *Journal of Perinatal Medicine*, 25, 197-204. doi:10.1515/jpme.1997.25.2.197
- [6] Ekblom, P., Damm, P., Nogaard, K., Clausen, P., Feldt-Rasmussen, U., Feldt-Rasmussen, B., Nielsen, L.H., Molsted-Pedersen, L. and Mathiesen, E.R. (2000) Urinary albumin excretion and 24-hour blood pressure as predictors of pre-eclampsia in type I diabetes. *Diabetologia*, 43, 927-931. doi:10.1007/s001250051471
- [7] Bunn, H.F., Gabbay, K.H. and Gallop, P.M. (1978) The glycosylation of he-moglobin: Relevance to diabetes mellitus. *Science*, 200, 21-27. doi:10.1126/science.635569
- [8] Koga, M. and Kasayama, S. (2010) Clinical impact of glycated albumin as another glycemic control marker. *Endocrine Journal*, 57, 751-762. doi:10.1507/endocrj.K10E-138
- [9] Alberti, K.G. and Zimmet, P.Z. (1998) Definition, diagnosis and classification of diabetes mellitus and its complications. Part 1: Diagnosis and classification of diabetes mellitus provisional report of a WHO consultation. *Diabetic Medicine*, 15, 539-553. doi:10.1002/(SICI)1096-9136(199807)15:7<539::AID-DIA668>3.0.CO;2-S
- [10] Yang, H., Wei, Y., Gao, X., Xu, X., Fan, L., He, J., Hu, Y., Liu, X., Chen, X., Yang, Z. and Zhang, C. (2009) China National GDM Survey Working Group. Risk factors for gestational diabetes mellitus in Chinese women: A prospective study of 16,286 pregnant women in China. *Diabetic Medicine*, 26, 1099-104.
- [11] Langer, O., Levy, J., Brustman, L., Anyaegbunam, A., Merkatz, R. and Divon, M. (1989) Glycemic control in gestational diabetes mellitus—How tight is tight enough: Small for gestational age versus large for gestational age? *American Journal of Obstetrics & Gynecology*, 161, 646-653.
- [12] Abe, F., Miyamoto, N., Tahara, Y., Takahashi, J. and Shima, K. (1993) Serum glycated albumin concentrations during pregnancy. *Annals of Clinical Biochemistry*, 30, 198-200.
- [13] Worth, R., Potter, J.M., Drury, J., Fraser, R.B. and Cullen, D.R. (1985) Glycosylated haemoglobin in normal pregnancy: A longitudinal study with two independent methods. *Diabetologia*, 28, 76-79.
- [14] Hashimoto, K., Noguchi, S., Morimoto, Y., Hamada, S., Wasada, K., Imai, S., Murata, Y., Kasayama, S. and Koga, M. (2008) A1C but not serum glycated albumin is elevated in late pregnancy owing to iron deficiency. *Diabetes Care*, 31, 1945-1948. doi:10.2337/dc08-0352
- [15] Hashimoto, K., Osugi, T., Noguchi, S., Morimoto, Y., Wasada, K., Imai, S., Waguri, M., Toyoda, R., Fujita, T., Kasayama, S. and Koga, M. (2010) A1C but not serum glycated albumin is elevated because of iron deficiency in late pregnancy in diabetic women. *Diabetes Care*, 33, 509-511. doi:10.2337/dc09-1954