

WEB BASED TELEMEDICINE SYSTEM IS USEFUL FOR MONITORING GLUCOSE CONTROL IN PREGNANT WOMEN WITH DIABETES

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OBJECTIVES

The aim of this study was to examine the impact of a web-based telemedicine system for monitoring glucose control in pregnant women with diabetes on health care visits, metabolic control and pregnancy outcomes.

METHODS

A prospective, single-center, and interventional study with two parallel groups. Women were assigned to 2 different glucose monitoring groups: control group (CG) that was managed only by follow ups with the Gestational Diabetes Unit (GDU) and telemedicine group (TMG) that was monitored both by more spaced GDU visits and a web-based telemedicine system. The number of health care visits, degree of metabolic control and maternal and neonatal outcomes were evaluated.

Table 1. Characteristics of patients participating in the study(n=104)

Clinical Characteristics	Total (n=104)	TMG (n=40)	CG (n=64)	P
Mean Age(years-old)	33,8±4,6	34,9±3,9	33,2±4,9	0,054
Race/Ethnicity				0,385
Caucasian	100(96,2%)	39(97,5%)	61(95,2%)	
Hispanic	2(1,9%)	1(2,5%)	1(1,6%)	
North African	2(1,9%)	0(0,0%)	2(3,2%)	
Type of diabetes				0,677
Pregestational Type 1 Diabetes	16(15,4%)	7(17,5%)	9(14,1%)	
Pregestational Type 2 Diabetes	11(10,6%)	3(7,5%)	8(12,5%)	
Gestational Diabetes	77(74%)	30(75%)	47(73,4%)	
Mean diabetes evolution(years)*	9,9±8,4	10,7±9,2	9,4±8,2	0,718
Imoversotary Studies(%)	23(22,1%)	14(35%)	14(21,8%)	0,013
Internet at home(%)	98(94,2%)	40(100%)	58(90,6%)	0,673
Currently working(%)	39(37,5%)	16(40%)	23(35,9%)	0,446
Distance Patient City-Hospital(Km)	22,9±17,3	25,4±19,8	21,3±15,6	0,245
Prepregnancy BMI(Kg/m ²)	28,5±7,7	27,7±8,9	28,9±6,8	0,457
Hypertension(%)	5(4,8%)	4(10%)	1(1,6%)	0,076
Primiparous(%)	54(51,9%)	19(47,5%)	32(51,6%)	0,420
Prior Gestational Diabetes(%)	20(19,2%)	7(17,5%)	13(20,3%)	0,476
Prior Miscarriages(%)	36(34,6%)	12(30%)	24(37,5%)	0,247
Visit 0 at GDU(Week of pregnant)	21,1±9,6	22,3±9,8	20,2±9,5	0,292

Results are expressed as mean± standard deviation
BMI: Bod Mass Index; Km: Kilometers, * Only for patientes with pregestational diabetes

Graphs and tables

Graph 1. Metabolic control during pregnancy and after delivery

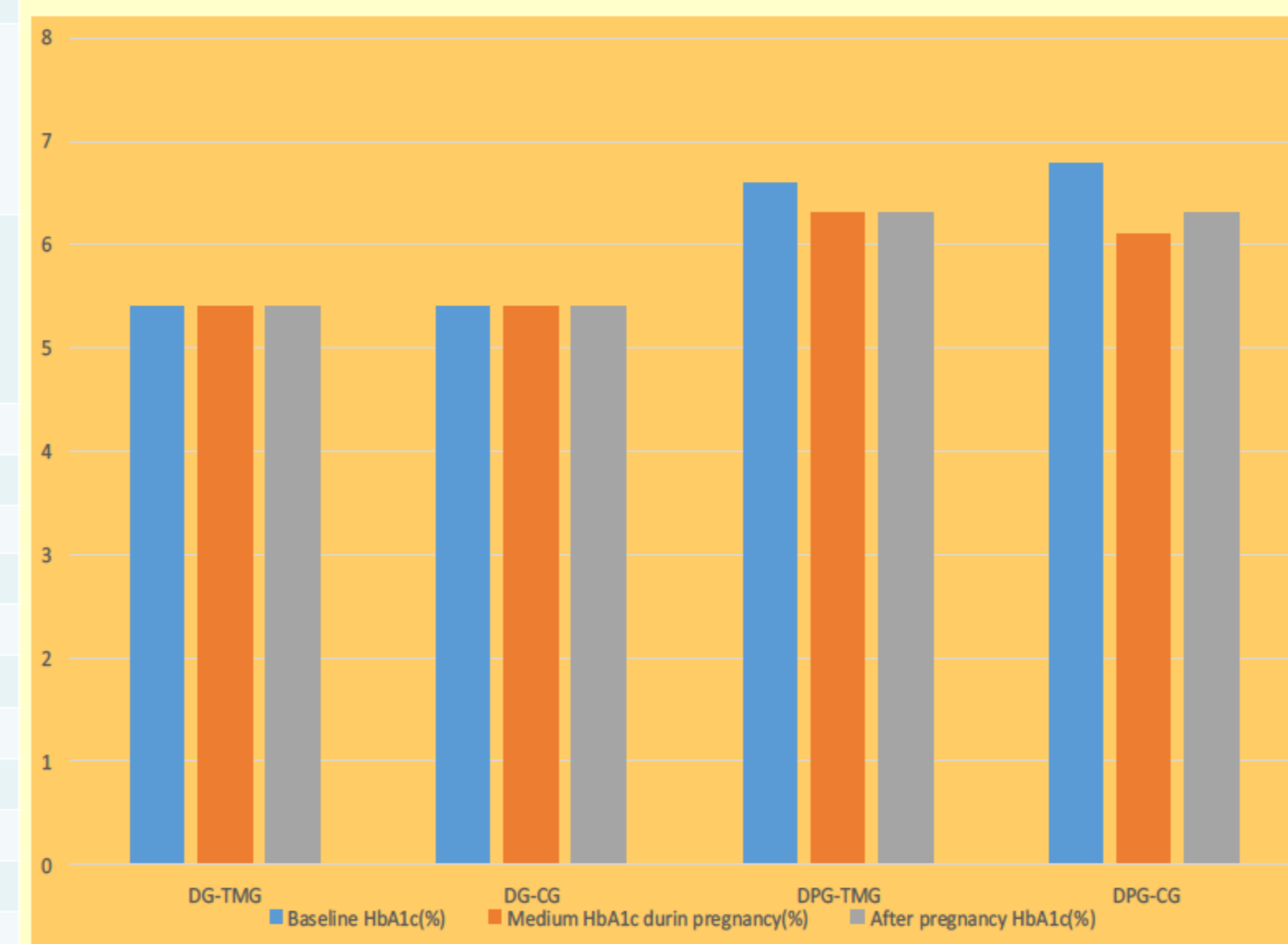


Table 2. Maternal, neonatal and visits outcomes in patients of the study

Outcomes	Total (n=104)	TMG (n=40)	CG (n=64)	P
Maternal outcomes				
Time of delivery(week)	38,2±1,7	37,8±2,1	38,4±1,4	0,083
Delivery before 37 weeks(%)	8(7,7%)	3(7,5%)	5(7,8%)	0,175
Cesarean delivery(%)	38(36,5%)	12(30%)	26(40,6%)	0,164
Maternal weight gain(Kg)	8,8±6,5	8,4±6,5	9,0±6,6	0,644
DG with insulin treatment(%)	27(26,9%)	6(15%)	21(32,8%)	0,023
Preganancy induced HTA(%)	5(4,8%)	2(5%)	3(4,7%)	0,966
Maternal hospital stay (days)	4,7±3,6	4,8±4,0	4,6±3,4	0,879
Neonatal outcomes				
Miscarriages(%)	2(1,9%)	2(5%)	0(0%)	0,093
Birth weight (gr)	3159±481	3077±570	3213±411	0,195
Large for gestational age(%)	11(10,6%)	5(12,5%)	6(9,4%)	0,660
Small for gestational age(%)	6(5,8%)	3(7,5%)	3(4,7%)	0,581
Hypoglycemia(%)	3(2,9%)	1(2,5%)	2(3,1%)	0,646
Other neonatal complications(%)	3(2,9%)	0(0%)	3(4,7%)	0,189
Health visits outcomes				
Visits to GDU (n)	4,8±2,7	3,2±2,3	5,9±3,2	<0,001
Visits to Nurse Educator (n)	2,5±1,6	1,7±1,3	3,0±1,7	<0,001
Visits to Obstetric Service (n)	6,7±2,4	6,4±2,7	7,0±2,3	0,263
Visits to Hospital Emergency (n)	2,7±1,9	2,3±1,5	2,9±1,1	0,184
Visits to General practitioner (n)	4,4±2,7	3,7±2,0	4,9±2,8	0,034
Visits to Ambulatory Nurse (n)	6,1±1,6	6,4±1,8	5,9±1,5	0,215
Online visits (n)	2,2±4,7	6,3±6,1	0,0±0,0	<0,001

Results are expressed as mean± standard deviation

RESULTS

104 pregnant women with diabetes (77 with gestational diabetes, 16 with type 1 diabetes and 11 with type 2 diabetes) were included in the TMG (n = 40) or in the CG (n = 64). There were no significant differences in mean HbA1c level during pregnancy or after delivery, despite significantly lower number of visits to the GDU (3.2 ± 2.3 vs 5.9 ± 2.3 visits, p <0.001), nurse educator (1.7 ± 1.3 vs 3.0 ± 1.7 visits, p <0.001), and general practitioner (3.7 ± 2.0 vs 4.9 ± 2.8 visits, p <0.034) in the TMG. There were no significant differences between groups in maternal or neonatal outcomes.

CONCLUSIONS

Web-based telemedicine system can be a useful tool facilitating the management of pregnant diabetic patients, as a complement to conventional outpatient clinic visits, especially in cases with difficulties to access the medical centre, and could contribute to reduce the outpatient visits.

References

Text

