



Category: Applied Research in Health and Medicine

ORIGINAL

Level of knowledge of diabetic pregnant women about the pathology, signs and symptoms, alarm guidelines and treatment in a public hospital in Rosario during the period from October to November 2020

Nivel de conocimiento de la gestante diabética sobre la patología, signos y síntomas, pautas de alarma, y tratamiento en un Hospital público de Rosario durante el periodo de octubre a noviembre del año 2020

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ABSTRACT

Gestational diabetes (GD) is a disease that increases the risk of suffering obstetric problems and developing post-pregnancy diseases in both mother and child. A descriptive and cross-sectional study was carried out with the aim of evaluating the level of knowledge of diabetic pregnant women about gestational diabetes in the Maternity Inpatient Ward of the Hospital Provincial del Centenario during the period October-November 2020. Seventeen pregnant women with a confirmed diagnosis of GD participated in the study, of whom 8 patients were receiving insulin treatment and 9 were not receiving insulin therapy treatment. Confidentiality of personal and collected information was assured. The survey technique was used through a self-constructed collection instrument. The participants were between 19 and 43 years old, 71% of them had a diagnosis older than 30 days. Family history predominated in both groups. Regarding knowledge of GD, a little more than half did not identify the symptoms. Non-insulinized patients knew treatment guidelines in 44% and insulinized patients in 25% of cases, 38% reduced treatment to insulin therapy. Only 3 patients were aware of alarm guidelines. Seventy-six percent always comply with the glycemic control prescription indicated by the physician and insulinized patients were more aware of postpartum control (reclassification). Health education is recommended as an essential nursing task to improve the management of the disease by the patients, favor adherence to treatment and control of complications.

Keywords: gestational diabetes; knowledge; insulinized and non-insulinized.

RESUMEN

La diabetes gestacional (DG) es una enfermedad que aumenta el riesgo de sufrir problemas obstétricos y de desarrollar enfermedades en el post embarazo tanto en la madre como en el hijo. Se realizó un estudio descriptivo y corte transversal con el objetivo de evaluar el nivel de conocimiento de la gestante diabética sobre la diabetes gestacional en la Sala de Internación de Maternidad del Hospital Provincial del Centenario durante el período octubre-noviembre del año 2020. Participaron 17 gestantes con diagnóstico confirmado de DG, de las cuales 8 pacientes realizaban tratamiento de insulina, y 9 no realizaban tratamiento de insulino terapia Aceptaron formar parte del estudio. Se aseguró la confidencialidad de información personal y recopilada. Se utilizó la técnica de encuesta a través de un instrumento de recolección de construcción propia. Las participantes tenían entre 19 y 43 años, el 71% tenía diagnóstico con una antigüedad superior a 30 días. Los antecedentes familiares predominan en ambos grupos. Sobre conocimiento de DG, un poco más de la mitad no identificó los síntomas. Las pacientes no Insulinizadas conocían pautas de tratamiento en un 44 % y las insulinizadas en un 25% de los casos, el 38 % reduce el tratamiento a la insulino terapia. Solo 3 pacientes conocen pautas de alarma. El 76 % cumple siempre con la prescripción de control de glicemia indicado por el médico y las pacientes insulinizadas tenían más conciencia del control post parto (reclasificación). Se recomienda la educación para la salud como labor esencial de Enfermería para mejorar el manejo de la enfermedad que hacen las pacientes, favorecer la adhesión al tratamiento y el control de las complicaciones.

Palabras clave: diabetes gestacional; conocimiento; insulinizadas y no insulinizadas.

INTRODUCTION

This research aims to evaluate the level of knowledge of diabetic pregnant women about gestational diabetes in the Maternity Ward of the Provincial Hospital of Centenario from October to November 2020.

Among the relevant research with a similar focus to the one to be investigated, we can mention Quintero Medrano et al. (2018), who studied the level of knowledge about risk factors and complications of gestational diabetes in pregnant women in a public hospital in northeastern Mexico. They concluded that the level of knowledge is low and that it is related to the educational and economic level of the pregnant woman, whether she has had diabetes before or whether she has received specific education about diabetes. They also identified the importance of training pregnant women in the management of this pathology so that they can recognize the risk factors and maternal-fetal complications and improve adherence to treatment and control of the disease.

Another piece of work considered was Lara Luque's (2016) evaluation of an educational intervention in the management of GD, which demonstrated the fundamental role played by the professional nurse as an educational agent. The findings described how this intervention favored the quality of care by improving treatment adherence and the early detection of emotional alterations, concluding on the nurse's role in health education and the impact on preventing diseases and their complications.

Due to the growing increase in the prevalence of gestational diabetes in the Maternity Ward of the Provincial Hospital of the Centenario in recent years, there is an interest in researching diabetic pregnant women in different dimensions, such as information and knowledge they have of the disease, monitoring of blood glucose, correction of this and adherence to nutritional and pharmacological treatment. The absence of previous studies in the service above justifies research that makes a first theoretical contribution to the problem and initiates a line of research. Using the information obtained to improve treatment adherence and reduce re-hospitalizations would be socially relevant, with the consequent impact on hospital costs and the patient's quality of life. In addition, nurses would benefit from the

contribution of information that improves knowledge of reality and allows the updating of previous knowledge to build proposals that will enhance care in preventing, promoting, and treating this disease.

What is the level of knowledge that pregnant women with gestational diabetes have about the pathology, signs and symptoms, alarm, and treatment guidelines in the Maternity Ward of the Provincial Hospital of Centenario from October to November 2020?

General objective

To evaluate the level of knowledge of diabetic pregnant women about gestational diabetes in the Maternity Ward of the Provincial Hospital of Centenario during the period October-November 2020.

METHODS

Design

This research is a study with a quantitative approach:

Its objective is to measure phenomena and express them in quantities.

In this research, taking into consideration that we want to analyze the level of knowledge of diabetic pregnant women about gestational diabetes, complications, and treatment that pregnant women admitted to the maternity ward of the Centenario provincial hospital in October and November 2020 through a survey and subsequent analysis of the data, it is determined that the approach is quantitative.

Descriptive:

It is a descriptive study because it investigates a reality at a specific moment. To do this, information will be obtained through a survey of our design, where the level of knowledge of the diabetic pregnant woman will be investigated, variables will be defined, and the study group, then the data will be collected. The results obtained from the research will be analyzed and described.

Cross-sectional:

In this study, a cross-sectional design will be developed, which will allow us to study what is happening in a group at a specific moment. From this perspective, this research will allow us to analyze the level of knowledge of insulinized and non-insulinized diabetic pregnant women who are admitted to the maternity ward of the Centenario Provincial Hospital during the period studied.

Area of study:

The Provincial Hospital of Centenario (HPC) covers an area of approximately four city blocks, which it shares with the faculties of Medicine and Dentistry of the National University of Rosario; it is located 30 blocks from the city center, at 3100 Urquiza Street and Francia Avenue. It is a highly complex multipurpose hospital with an emphasis on cardiovascular pathologies, dependent on the provincial Ministry of Health, aimed at the population of the northern and northwestern areas of the Rosario Region. It is administered by an elected commission and directed by Dr. Claudia Perouch.

Within the Provincial Hospital of Centenario, there are a large number of services that specialize in medical health care. Among them is the Maternity Ward, where this research was carried out. It is the only hospital ward that continues to be ward-based, which means that mothers and newborns are admitted together. The ward has a capacity of 27 beds for basic obstetric, gynecological, and perinatal care, and around 2,000 patients are admitted annually.

The maternity ward is staffed by different medical specialists: obstetricians, gynecologists, neonatologists, and nurses, who provide comprehensive patient care.

Population:

The population will consist of all pregnant women with gestational diabetes admitted to the Maternity Ward of the Provincial Hospital of Centenario from October to November 2020 who have previously signed the informed consent form.

Inclusion criteria:

The following inclusion criteria were established for the field study:

- Pregnant women who were admitted to the maternity ward of the Provincial Centenario Hospital from October to November 2020.
- Pregnant women who were diagnosed with gestational diabetes.

Participants

The study population consisted of all pregnant women with GDM admitted to the Maternity Ward of the Provincial Hospital of Centenario from October to November 2020. A confirmed diagnosis of GDM was an inclusion criterion, and an exclusion criterion was that they did not agree to participate in the study. The results obtained can only refer to the pregnant women surveyed. There were eight insulin-treated patients and nine non-insulin-treated patients.

Techniques and instruments

A survey technique was used through a data collection instrument completed by the researcher in an interview with the patients (see Appendix A). The instrument was designed in-house, exclusively for this research, and was tested and validated with 10 students from the Bachelor of Nursing at the UAI and the professor who reviewed the instrument and made suggestions until a survey was achieved that was simple to understand and easy to complete. Given the pandemic situation, the questionnaire was constructed with the Google Form application and the link shared by the WhatsApp application with the students and the teacher. In an online class meeting, the feedback was shared.

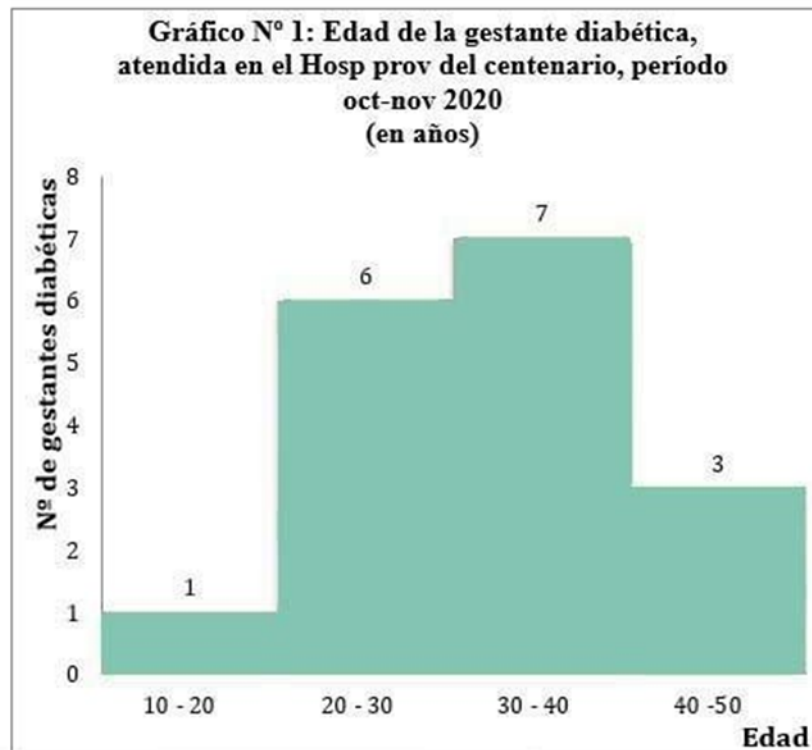
The instrument compiled six items aimed at defining the sociodemographic categories and the history of the disease; one of these histories made it possible to distinguish the category of insulinized or non-insulinized participants. It continued with five items that sought to specify the knowledge about GD of the pregnant women, four items to determine the glycemic monitoring that diabetic pregnant women do, and five to establish the adherence to the nutritional treatment that insulinized and non-insulinized hospitalized diabetic pregnant women carry out. The masculinized patients had three additional items added to demonstrate compliance with pharmacological therapy.

Ethical considerations

Express and informed consent was requested and obtained in writing (see Appendix B) from all the diabetic pregnant women interviewed. When they were invited to participate in the research, they were given information about the purpose, duration, methodology, and criteria for ending their participation, emphasizing the right to withdraw at any time if they so wished. Furthermore, to preserve the confidentiality of the information provided, all data that could identify the participant was coded to protect personal data, safeguard their identity, and ensure their anonymity. A clear commitment was made to maintain due confidentiality regarding the personal data of the project participants, both in obtaining, processing, and storing the data and in the subsequent publication of the results.

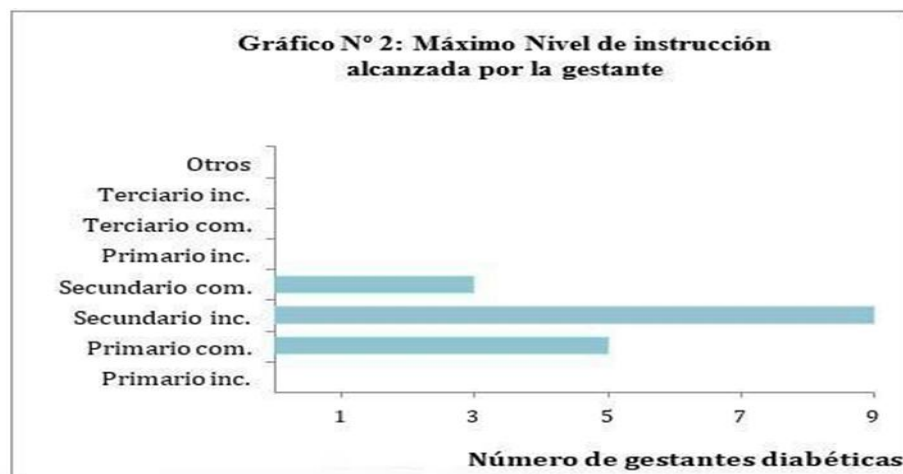
RESULTS

The study population consisted of 17 pregnant women with a confirmed diagnosis of GD aged between 19 and 43. This sociodemographic characteristic and the clinical history showed a homogeneously distributed population of pregnant women. Half of the mothers met Belmar et al.'s third diagnostic risk criterion (2004), which proposes establishing the diagnosis when the mother is over 30.



Fuente: datos relevados en la encuesta

The highest level of education attained, which predominated, was incomplete secondary education (53%). Complete primary education was 29%, and full secondary education was 18%. This could be a warning from the background of Quintero Medrano et al. (2018), who point to educational level as an essential risk factor for GD complications.



Fuente: datos relevados en la encuesta

A family history of diabetes (FHD) was predominant in both groups, reaching 87.5% in the group of insulin-treated patients compared to 66% in the group of non-insulin-treated patients, confirming the

importance of a first-degree family history of diabetes (FHD) as a diagnostic recommendation suggested by the Latin American Diabetes Association and stated in Salzberg et al. (2016).

TABLE 1. Family history of diabetes in pregnant women hospitalized with a confirmed diagnosis of gestational diabetes.

Pregnant women	With a background	No previous history	Total	Percentage
Insulin-treated	7	1	8	87,5 %
Not insulin-treated	6	3	9	66%
Total, patients	13	4	17	
Percentage	76%	24 %		

The history of GD in previous pregnancies was not predominant in either group, 18% (3 pregnant women) were diagnosed with GD in the previous pregnancy, and 82% (14 pregnant women) had no history of it.



Fuente: datos relevados en la encuesta

The study population consisted of 9 pregnant women not treated with insulin and 8 treated with insulin. A large majority, 77%, had a confirmed diagnosis of more than 30 days or from a previous pregnancy, which is encouraging considering the problems caused by the lack of timely treatment, as discussed by Carvajal Andrade et al. (2019).



Fuente: datos relevados en la encuesta

TABLE 2.

Age at diagnosis of gestational diabetes in hospitalized pregnant women		
Time	Percentage	Pregnant women
Less than 1 month	23%	4
More than 1 month	71%	12
Previous pregnancy	6%	1

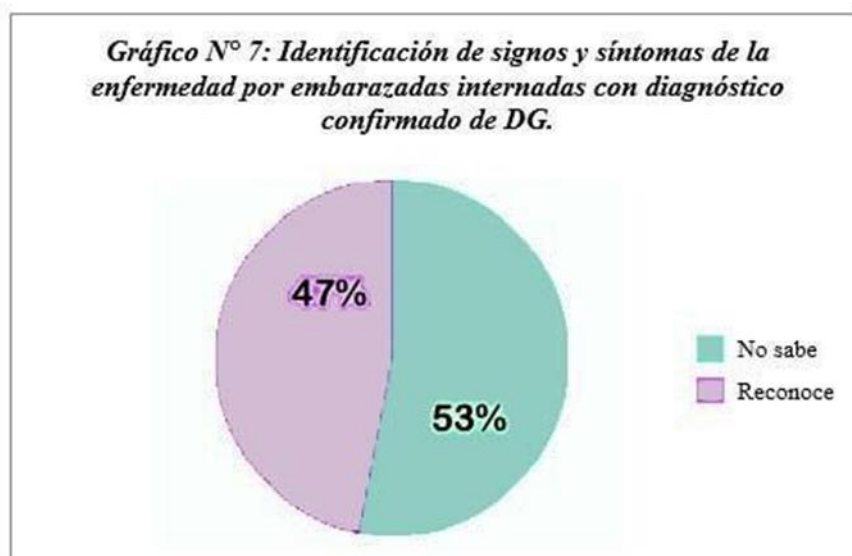


Fuente: datos relevados en la encuesta

With regard to their knowledge of the disease, 15 mothers defined it correctly by choosing the option degree of glucose intolerance. But when asked to identify the signs and symptoms of the disease, just under half chose the correct option thirst (polydipsia), excessive hunger (polyphagia), lack of energy, extreme tiredness and frequent urination (polyuria).



Fuente: datos relevados en la encuesta



Fuente: datos relevados en la encuesta

The lack of knowledge of the warning signs was very high at 83%, and the sources used for information that the patients recognized revealed the predominance of that which comes from the health team (41%) and a good percentage of the knowledge provided by the family (35%). Complications from gestational diabetes can be severe and even fatal, as explained in Vigil-De Gracia and Olmedo (2017). This point highlights the findings of Lara (2016), who described the importance of the role of nurses in health education and educational intervention in terms of the final result of adherence to treatment and the prevention of complications. In this sense, Quintero Medrano et al. (2018) specifically identified the need

to train patients on the management of the disease so that they can recognize risk factors and maternal-fetal complications and improve treatment adherence. Discapnet (2022) affirms how adequate knowledge of the situations and natural evolution of the disease allows for management compatible with a better quality of life.

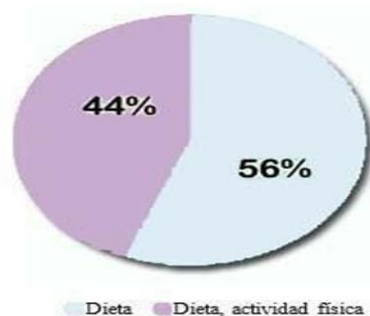


Fuente: datos relevados en la encuesta

Knowledge of treatment in non-insulin-treated patients showed optimal results concerning diet, but the consideration of complementary physical activity decreased to 44%. Insulin-treated patients are aware of the treatment in 25% of cases, while 37% do not recognize physical activity, and 38% reduce the treatment to insulin therapy alone. The Center for Disease Control (CDC) (2022a) proposes five pillars for the proper management of GDM that are not up for debate: a proper diet, regular physical activity, regulated monitoring of blood glucose, insulin therapy (if prescribed) and reclassification for BTD in the postpartum period.

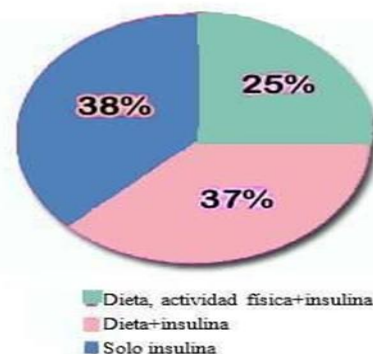
Ríos-Martínez et al. (2014) confirm that increased physical activity correlates with a lower rate of GDM.

Gráfico 9. Conocimiento del tto. embarazadas internadas con diagnóstico de DG. No insulinizadas



Fuente: datos relevados en la encuesta

Gráfico 10. Conocimiento del tto. en embarazadas internadas con diagnóstico de DG. Insulinizadas.



Regarding who carries out the blood glucose checks as instructed by the doctor, there was a homogeneous distribution between self-monitoring and having the procedure carried out by a family member or the healthcare team. Many patients (76%) managed the need to wait 2 hours after finishing a meal to carry out a blood glucose check.

Only 76% always comply with the indicated control prescription. Frequent monitoring of capillary blood glucose is essential to follow the evolution of GD. Still, the medical indication of daily monitoring frequency is conditioned by the provision of resources (Salzberg et al. 2016) and requires the patient's ability to self-harm by pricking her finger. Control is so crucial that Arizmendi et al. (2012) claim that even if adherence is only at 28 weeks, the favorable effects are seen in the growth of the fetus, the increase in gestational age at birth, adequate weight and the reduction of injury during childbirth.

Gráfico 11. Agente de control de embarazadas internadas con diagnóstico confirmado de DG.

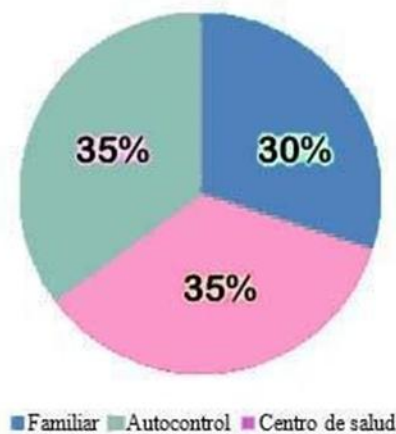
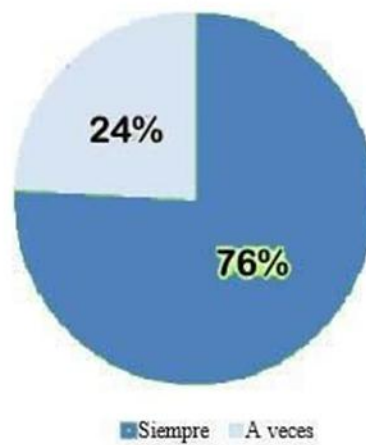


Gráfico 12. Cumplimiento del control Prescripto. Embarazadas internadas con diagnóstico confirmado de DG.



Fuente: datos relevados en la encuesta

In terms of the knowledge of the need to reclassify 30 days after giving birth to the patients who had GD, the insulinized patients were more aware of this postpartum glycemic control than 75% of the patients as opposed to 22% of the non-insulinized patients. The postpartum prevalence of DM can reach up to 50% and requires a new diabetes test between 6 and 12 weeks after the birth of your baby and continued annual check-ups (CDC, 2022a).

TABLE 3. Awareness of the need for postpartum reclassification in hospitalized pregnant women with a confirmed diagnosis of GD.

Pregnant	He knows	He doesn't know	total	Percentage
Insulin-treated	6	2	8	75%
Not Insulin-treated	2	7	9	22%
Total, pregnant	8	9	17	
Percentage	47 %	53%		



Fuente: datos relevados en la encuesta

Regarding adherence to nutritional treatment, only three patients comply with not ingesting contraindicated foods, as opposed to 2 non-insulinized patients who consistently fail to comply with the indication. It is worth recalling the findings of Ríos-Martínez et al. (2014) on the therapeutic results of the therapeutic objective of maintaining maternal glycemia at acceptable levels (especially postprandial) in which a low-carbohydrate diet is effective in reducing birth weight, avoiding subsequent obesity and reducing complications and perinatal death.

	Consumption of contraindicated foods			Total number of patients
	Always	Sometimes	Never	
Insulinized	0	7	1	8
Not Insulinized	2	5	2	9
Total	2	12	3	17
Percent	11,7%	70 %	18,3 %	

Gráfico 14 Frecuencia de ingesta de alimentos contraindicados en embarazadas internadas con diagnóstico confirmado de DG



Insulinized patients showed better compliance with the four daily meals and snacks (75% always) than non-insulinized patients (33% always).

Pregnant woman	Daily meals and snacks provided		Percentage
	Frequency		
	Sometimes	Always	
Insulinized	2	6	75%
Not Insulinized	6	3	33%
Total	8	9	
Percent	47%	53%	

Source: data collected in the survey.

Gráfico 15. Cumplimiento de las cuatro comidas diarias y colaciones de las gestantes internadas con diagnóstico de DG confirmado



When asked about knowledge of the long-term effects that gestational diabetes can have on babies born to diabetic mothers, only 18% said they knew about them, compared to 82% who did not know about the effects. On the other hand, when asked about knowledge of the complications that uncontrolled diabetes can have on the baby, 59% said they knew about them and 41% did not know about them.



53% of the patients stated that they did not know what the complications to be controlled in GD were, 24% confused the complications with hypertensive diseases and 23% identified hypertension, macrosomia, a higher incidence of caesarean sections and foetal death as complications.



Fuente: datos relevados en la encuesta

When investigating adherence to pharmacological treatment, three additional items were worked on for salinized pregnant women, revealing that the non-compliance of punctual application of insulin and the personal decision not to apply it is high at 37.5%. 63.5% of the patients are correctly consolidated in

insulin treatment. We also refer to how these patients manage the disease when discussing treatment adherence. Disease management refers to the decisions about lifestyle and the monitoring and adherence to prescribed medical treatments to achieve the best possible state of health. Becoming ill with DBT is a situation that will lead to living with a chronic disease for part of one's life or even longer, leaving the best option as learning guidelines to achieve the best possible management of the disease. "Managing the disease and having adequate knowledge of the situations and natural evolution of the disease and its possible solutions is, in most cases, sufficient to improve the quality of life of patients or people with certain conditions" (Discapnet, 2022).

Gráfico 19: Administración puntual de insulina en zonas indicadas en gestantes con diagnóstico confirmado de DG.



Gráfico 20: Olvido de administración de insulina en gestantes con diagnóstico confirmado de DG.

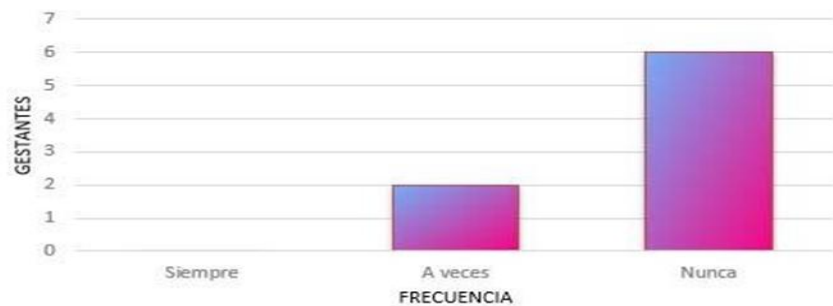


Gráfico 21: Decisión de no administrarse insulina En gestantes internadas con DG confirmada.



Source: data collected in the survey.

CONCLUSIONS

In defining the sociodemographic characteristics of the study population, the

Seventeen pregnant women with a confirmed diagnosis of GD had a homogeneous age distribution between 19 and 43 years, with a predominance of incomplete secondary education. The medical history identified nine pregnant women without insulin treatment and eight insulin-treated women, and 71% had a confirmed diagnosis of more than 30 days. A family history of diabetes (FHD) predominated in both groups, reaching 87.5% in the group of insulin-treated patients compared to 66% in the group of non-insulin-treated patients.

In terms of their knowledge of the disease, pregnant women hospitalized with a diagnosis of GDM had a lack of understanding of the signs and symptoms of the disease, which are confused with other possible pregnancy conditions. Non-insulin-treated patients knew the appropriate treatment in almost half of the cases, twice as many as those prescribed insulin. 38% reduce treatment to insulin therapy alone and disregard dietary and physical activity control measures. There is a very high lack of knowledge of alarm guidelines. The sources used for information that the patients recognized revealed a predominance of those provided by the healthcare team and the family environment.

The monitoring of glycemia showed a homogeneous distribution between self-monitoring and the execution of the procedure by a family member or the health team. It was determined that the patients managed the postprandial waiting period before carrying out a new control and always complied with the indicated control prescription. The masculinized patients reached a higher percentage (75%) than the non-insulinized patients (22%) in the need for postpartum reclassification.

In the approach to adherence to nutritional treatment, compliance with not ingesting contraindicated foods is very low; only three patients comply with not ingesting contraindicated foods as opposed to 2 non-insulinized patients who consistently fail to comply with the indication. It is worth recalling the exposition of Ríos Martínez et al. (2014) on the therapeutic results of the therapeutic objective of maintaining maternal glycemia at acceptable levels (especially postprandial) in which a low-carbohydrate diet is effective in reducing birth weight, avoiding subsequent obesity and reducing complications and perinatal death. Control of the four daily meals and snacks showed better compliance in the Insulinized 75% (always) patients than in the non-insulinized 33% (always) patients.

All recommendations suggest the immediate inclusion of a nutrition specialist upon confirmation of the diagnosis of GD (CDC, 2022a). The recommendations for maintaining adequate blood glucose levels with a food plan are categorical regarding the quality of carbohydrates and fats in the food ingested, the volume of the portions, and the interval between meals (CDC, 2022b). However, insulinized patients can replace the diet by resorting to medication (Arizmendi et al., 2012).

Knowledge of the complications of GD is high; 53% and 24% believed they knew it when, in reality, they confused it with other diseases. There was also a high level of ignorance about the complications to be controlled and the long-term effects of GD on the baby, 59% and 82%, respectively.

When we investigated adherence to pharmacological treatment, we worked with three additional items for insulin-treated pregnant women, which revealed that the non-compliance of punctual application of insulin and the personal decision of not applying it is high at 37.5%. 63.5% of the patients are correctly consolidated in insulin treatment. Regarding the general objective, there is a knowledge deficit; non-insulinized pregnant women showed a better understanding of the management of the disease in the areas of necessary treatment. Both groups have significant deficits in their knowledge of symptoms and warning signs. Glycaemia monitoring, as a tool for the management of GD, only showed differences in the information on the need for postpartum reclassification in favor of insulin-treated patients in a ratio of 3 to 1. The knowledge deficit is more significant than what the instrument reveals because the present investigation has a series of weaknesses. The results and conclusions can only be applied to the studied population, which was reduced due to the pandemic.

Furthermore, an interesting development of this study could be research that analyzes the impact of an educational intervention. Educating pregnant women about the consequences for the mother and fetus of non-compliance with treatment could motivate pregnant women to become aware.

Finally, health education for nurses is recommended to improve how patients manage the disease, encourage adherence to treatment, and control complications. It is suggested that nurses work together with other professionals and propose to the institution that they create an interdisciplinary group in which nursing is a fundamental pillar in the role of health education.

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CONFLICT OF INTEREST

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