

MODE OF DELIVERY IN WOMEN WITH TYPE 1 DIABETES COMPARED TO HEALTHY POPULATION IN SLOVENIA

Steblovnik L¹, Bržan Šimenc G¹, Žebeljan I², Tomažič M³, Verdenik I¹

¹ Department of perinatology, Division of obstetrics and gynaecology, University Medical Centre Ljubljana, Slovenia

² Department of Perinatology, Clinic for Gynaecology and Perinatology, University Medical Centre Maribor, Slovenia

³ Department of Endocrinology, Diabetes and Metabolic Diseases, University Medical Centre Ljubljana, Slovenia

INTRODUCTION

The incidence of cesarean sections (CS) in Slovenia has risen from 13 % in 2002 to 20,4% in 2015. In the same period, the incidence of CS in pregnancies complicated with type 1 diabetes (DM1) stayed relatively stable (40,7 % to 39%) (Chart 1).

Recent studies showed that planned CS at term is associated with adverse health outcomes in childhood. Should a vaginal delivery be preferred also in DM1 complicated pregnancy?

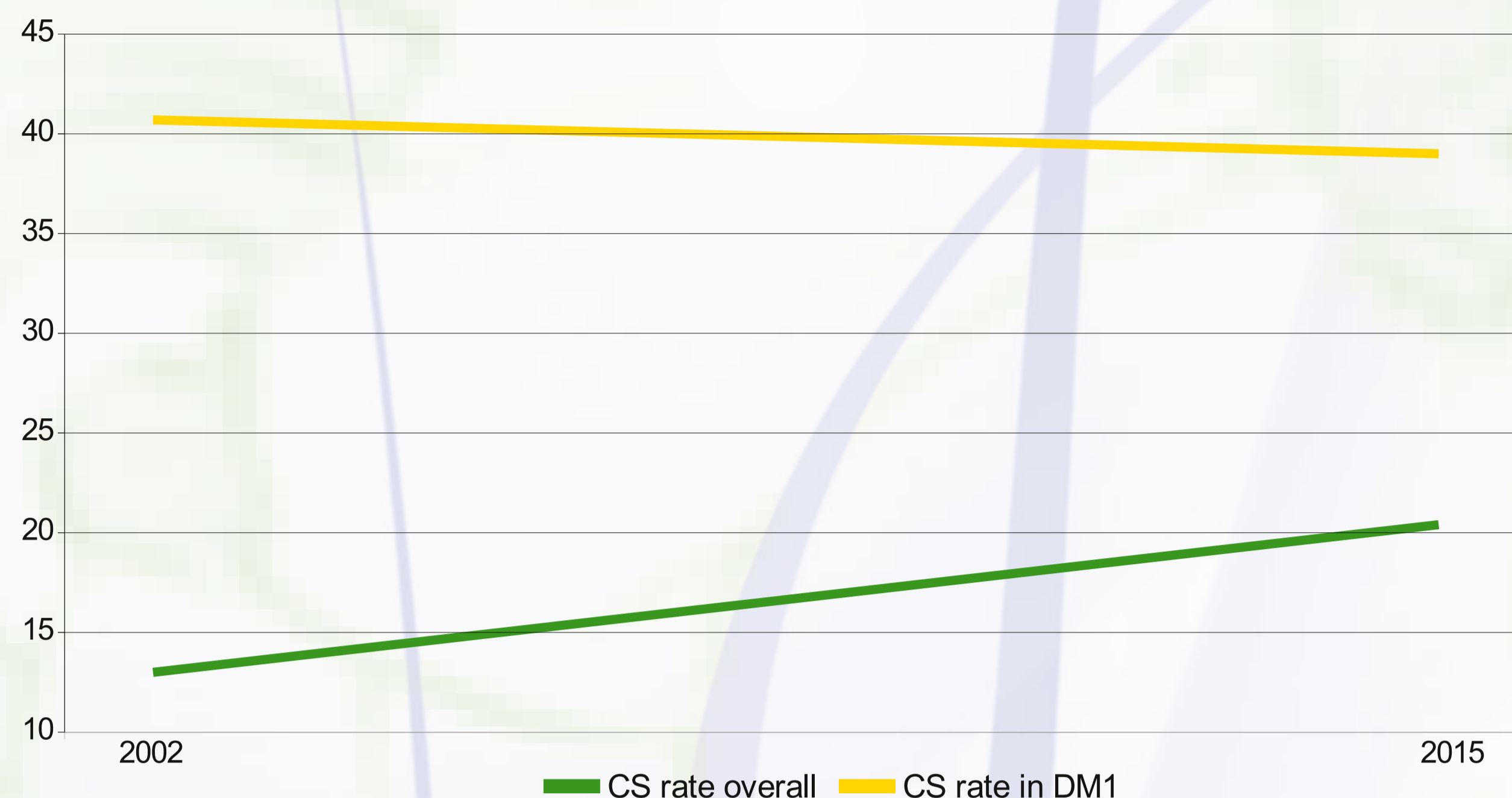


Chart 1. Rate of cesarean deliveries in Slovenia. CS - cesarean section, DM1 - type 1 diabetes mellitus

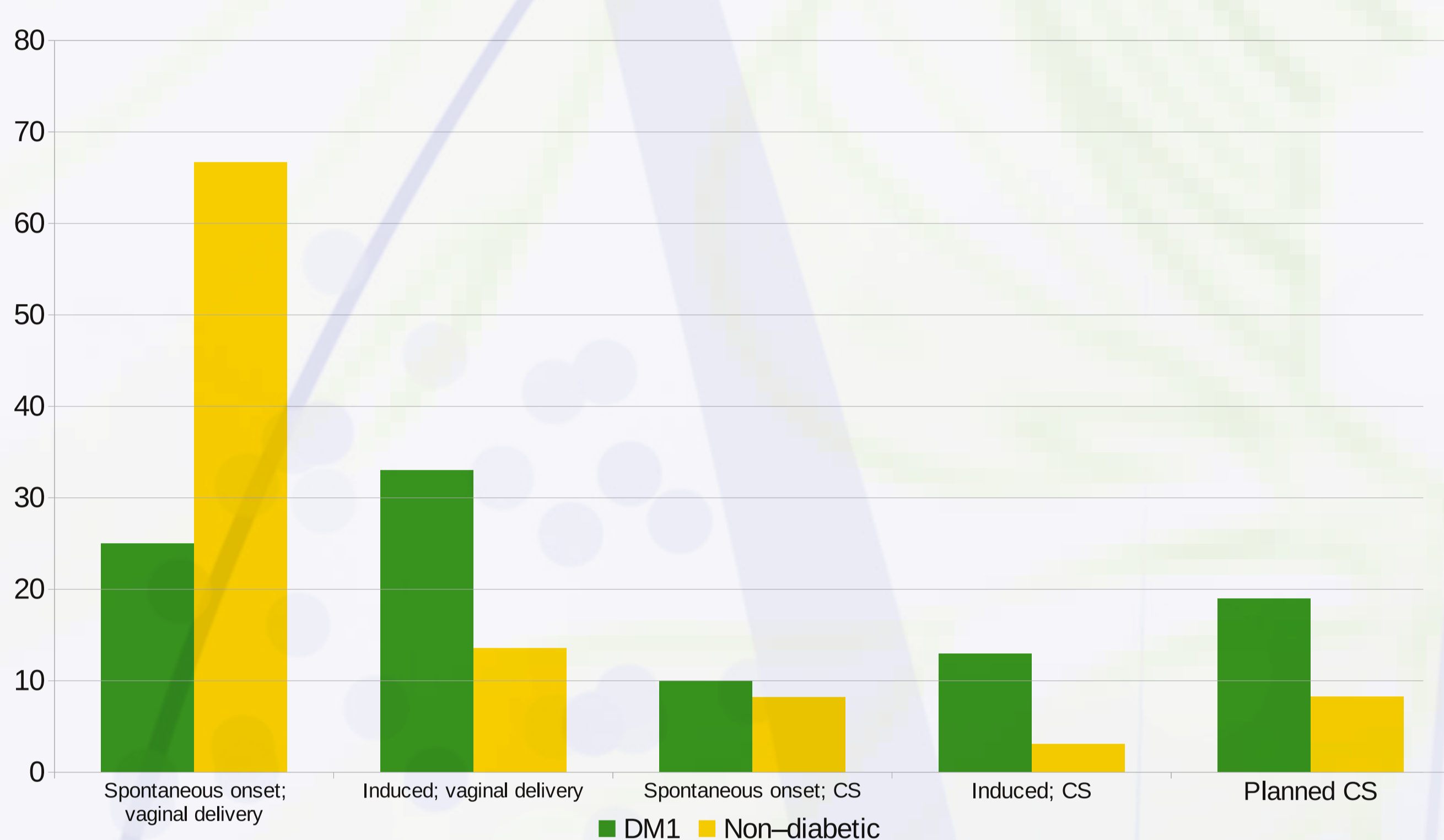


Chart 2. Singleton term (gestational age > 37 weeks) births in women with type 1 diabetes, compared to non-diabetic control group; divided by mode of delivery. DM1 – diabetes mellitus, CS - cesarean section

METHODS

In retrospective population based study, using the data from National perinatal information system, we compared singleton term deliveries (> 37 weeks) in women with DM1 with non-diabetic women in the years 2013 to 2015.

We compared the need for neonatal resuscitation or intensive care in five groups:

- 1) spontaneous onset of labour ended with vaginal delivery
- 2) induced labour ended with vaginal delivery
- 3) spontaneous onset ended with CS
- 4) induced labour ended with CS and
- 5) planned CS.

RESULTS

There were 51576 deliveries in non-diabetic and 100 in women with DM1. In women with DM1 there were more planned CS (19% vs 8,3%; $p < 0,05$) and significantly more vaginal deliveries resulted in CS (23% vs 11,2%; $p < 0,05$) (Chart 2).

Vacuum extractions were more common in group 1 (18% vs. 3,1%) and more neonates needed minor resuscitation measures (24% vs. 5,1%; $p < 0,05$). There were no significant differences in the need for resuscitation in the other groups (Table1).

		No resuscitation	Neonatal breathing stimulation	Mask ventilation	Endotracheal intubation and ventilation	Chest compressions	p
Spontaneous onset; vaginal delivery	Type 1 DM	19 (76%)	2 (8%)	4 (16%)	0 (0%)	0 (%)	$p < 0,05$
	Non-diabetic	32620 (95%)	1313 (3,8%)	381 (1,1%)	41 (0,1%)	31 (0,1%)	
Induced; Vaginal delivery	Type 1DM	30 (90,9%)	2 (6,1%)	1 (3%)	0	0	NS
	Non-diabetic	6659 (94,6%)	304 (4,3%)	63 (0,9%)	15 (0,2%)	0	
Spontaneous onset; CS	Type 1 DM	9 (90%)	0	1 (10%)	0	0	NS
	Non-diabetic	3413 (80,9%)	399 (9,5%)	347 (8,2%)	52 (1,2%)	9 (0,2%)	
Induced; CS	Type 1 DM	10 (76,9%)	0	3 (23,1%)	0	0	NS
	Non-diabetic	1268 (79,5%)	171 (10,7%)	134 (8,4%)	19 (1,2%)	3 (0,2%)	
Planned CS	Type 1 DM	18 (94,7%)	1 (5,3%)	0	0	0	NS
	Non-diabetic	3693 (85,8%)	355 (8,2%)	215 (5%)	41 (1%)	0	

Table 1. The need for neonatal resuscitation by the mode of delivery in women with type 1 diabetes mellitus and non-diabetic women. DM – diabetes mellitus, CS – caesarean section, NS – non significant

DISCUSSION

Our analysis showed that the preferred mode of delivery in women with DM1 in Slovenia is vaginal as it is in non-diabetic population. There were more inductions of labour than spontaneous onsets in the DM1 group. Rate of CS in DM1 patients remains stable and relatively low during the years, perhaps partly due to more frequent use of vacuum extraction than in non-diabetic population (18 % vs. 3,1%). Resuscitation measures were needed in significantly more newborns in DM1 than in non-diabetic population; however, those were minor measures - breathing stimulation and mask ventilation. No intubation or chest compressions were needed in newborns of DM1 mothers. Rate of planned CS at term is higher in DM1 than non-diabetic population, probably for medical and obstetric indications. As the positive effects of the vaginal birth are known, we conclude that attempt to deliver vaginally (with the proper timing of induction of labour) is preferred and safe in selected pregnant women with DM1.

CONCLUSION

Women with DM1 and their newborns are at higher risk for complications at delivery. Vaginal delivery should be preferred in majority of women with DM1.

LITERATURE

1. Black M, Bhattacharya S. Planned Cesarean Delivery at Term and Adverse Outcomes in Childhood Health. *JAMA*. 2015; 314: 2271-9.
2. Cundy T, Morgan J, O'Beirne C, Gamble G, Budden A, Ivanova V, Wallace M. Obstetric interventions for women with type 1 or type 2 diabetes. *Int J Gynaecol Obstet*. 2013; 123: 50-3.
3. Persson M, Norman M, Hanson U. Obstetric and perinatal outcomes in type 1 diabetic pregnancies: A large, population - based study. *Diabetes Care*. 2009; 32: 2005-9.