PREGNANCY LOSS RESEARCH GROUP

NATIONAL PERINATAL EPIDEMIOLOGY CENTRE

Characteristics associated with perinatal mortality in twin pregnancies

Caroline O'Connor[1,3], Sara Leitao[1,2], Keelin O´Donoghue[1,3]

1. Pregnancy Loss Research Group, Department of Obstetrics and Gynaecology, University College Cork, Ireland;
2. National Perinatal Epidemiology Centre (NPEC), University College Cork, Ireland;
3. INFANT Research Centre, University College Cork, Ireland

Background

The total births per annum is declining in Ireland, however the twin birth rate has remained constant. Perinatal mortality is a devastating outcome and it is acknowledged that twin pregnancies are at higher risk of perinatal death than singletons. National data on perinatal mortality are available in few countries and the ability to improve perinatal care for multiple pregnancies is facilitated in part by an assessment of these reported findings.

This study aimed to examine perinatal mortality in twins compared to singleton births in Ireland and investigate the associated maternal characteristics, antenatal care factors, location of care and main cause of death.

Methods

This retrospective study includes 3668 perinatal deaths (stillbirth n=2459 (67%) and early neonatal deaths n=1209 (33%) with a birthweight ≥500g or gestational age at delivery ≥24 weeks) occurring in any of the 19 maternities within the Republic of Ireland, from 2011-2019. The data was collected by the National Perinatal Epidemiology Centre for the annual perinatal mortality clinical audit.

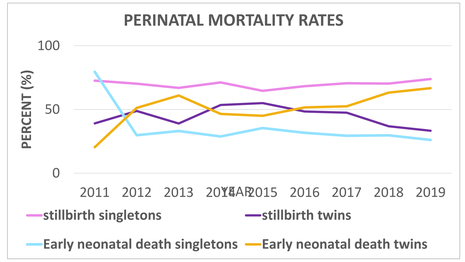
The type of perinatal mortality, maternal characteristics, antenatal care factors, causes of death and the characteristics associated to twin perinatal mortality were analysed. Pearson chi-squared tests studied the difference between mortality in singletons and twins.

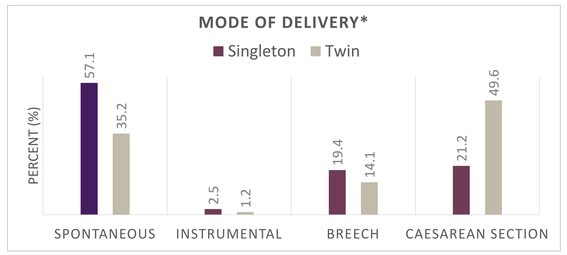
Results

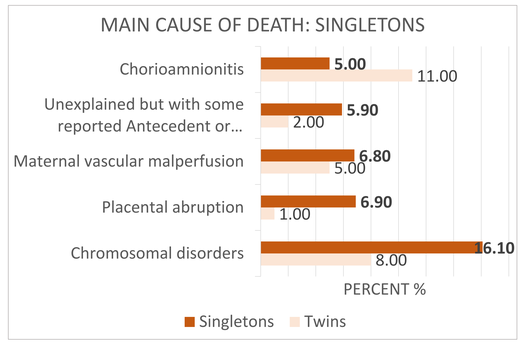
Table 1: Maternal characteristics of perinatal mortality in twins and singletons

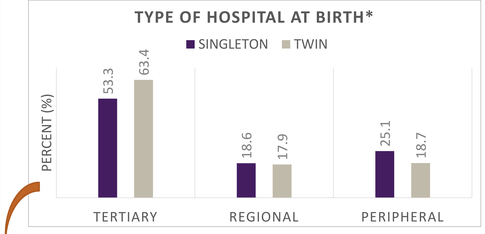
Maternal characteristics	Twins n (%)	Singletons n (%)	p value %
Age			
<20	10 (2.7%)	88 (2.7%)	
20-24	26 (7.0%)	347 (10.7%)	
25-29	60 (16.2%)	518 (17.9%)	
30-34	120 (32.3%)	995 (30.7%)	
35-39	109 (29.4%)	905 (27.9%)	
>39	46 (12.4%)	322 (9.9%)	0.186
Ethnicity			
-White Irish	284 (76.5%)	2378	
- Irish traveller	9 (2.4%)	(72.9%)	
- Other white	42 (11.3%)	96 (2.9%)	
- Asian	6 (1.6%)	419 (12.8%)	
- Black	14 (3.8%)	120 (3.7%)	
- Mixed	6 (1.6%)	133 (4.1%)	0.111
		73 (2.2%)	
Assisted conception	70 (21.9%)	127 (4.5%)	**<0.001**
Smoking (at booking)	35 (9.5%)	537 (16.6%)	**<0.001**
Previous pregnancies	2292 (59.4)	221 (70.2%)	**<.001**
Parity			
0	126 (40.4%)	849 (29.8%)	
1	104 (33.3%)	962 (33.8%)	
2	48 (15.4%)	606 (21.3%)	
3	19 (6.1%)	254 (8.9%)	
>3	15 (4.8%)	174 (6.1%)	**0.001**
Pre-existing medical problems	114 (30.8%)	1134 (34.8%)	**.017**
- Renal disease	2 (0.6%)	40 (1.2%)	.249
- Hypertension	4 (1.1%)	94 (2.9%)	**.045**
- Diabetes	13 (3.6%)	83 (2.6%)	.255
Disorders present during pregnancy			
-Pre-eclampsia	8 (2.2%)	114 (3.5%)	.180
- Abruption	10 (2.7%)	291 (8.9%)	**<.001**
- Oligohydramnios	12 (3.3%)	161 (5.1%)	.127
- Polyhydramnios	16 (4.4%)	126 (4.0%)	.678
- Chorioamnionitis	67 (18.6%)	252 (7.9%)	**<.001**

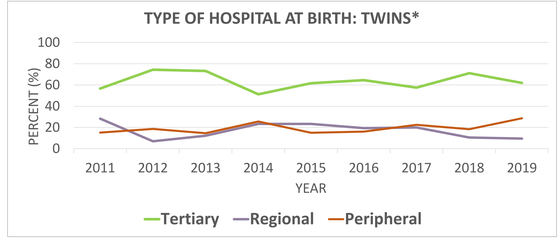
- There was a higher proportion of stillbirths in singletons (69.6% singletons. v 45.7% twins) while a higher proportion early neonatal deaths were recorded in twins (54.3% twins v 30.4% singletons), p=<.001.





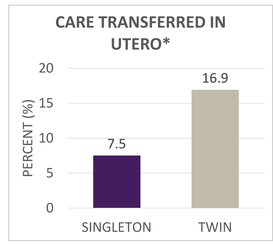






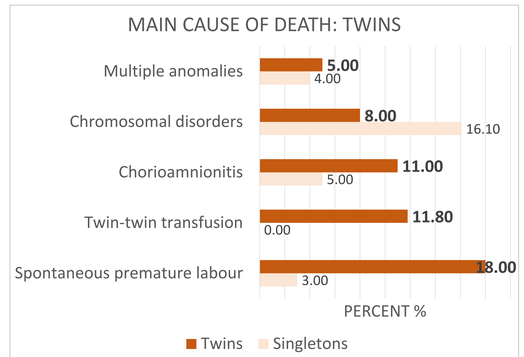
The number of twin deliveries in peripheral hospitals has not significantly changed between 2011-19, however there is a significant association of perinatal mortality in twin compared to singletons deliveries at tertiary, regional and peripheral hospital units (p=<.001).

* Association statistically significant



32 cases of care transferred to another unit during pregnancy:

- 18 peripheral-tertiary
- 2 peripheral-regional
- 6 regional-tertiary
- 4 tertiary.- tertiary
- 2 tertiary – peripheral



Conclusion

This study highlights the difference in the maternal characteristics, mode of delivery and main cause of death experienced between twins and singletons. The strong association with mortality and type of hospital at birth, including the number of twin pregnancies delivering in peripheral hospitals is a factor that should be addressed in updated clinical practice guidelines. It is essential to ensure twin pregnancies are managed by a specialised multidisciplinary team in appropriate hospital units to further optimise care.

Infant Irish Centre for Maternal and Child Health Research

NATIONAL PERINATAL EPIDEMIOLOGY CENTRE

UCC University College Cork, Ireland Coláiste na hOllscoile Corcaigh

IRISH RESEARCH COUNCIL An Chomhairle um Thaighde in Éirinn

Caroline O'Connor
Department of Obstetrics and Gynaecology,
University College Cork
carolineoconnor@ucc.ie

More about the **Pregnancy Loss Research Group** @PregnancyLossIE

More about **the NPEC** @NPEC_UCC