OUTCOME FOR LIVEBORN INFANTS <500G AND ≥23 WEEKS GESTATION IN A TERTIARY NEONATAL UNIT 2012-2016

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BACKGROUND

- Infants born at the threshold of viability are at highest risk of mortality and morbidity.
- The Royal College of Obstetricians and Gynaecologists define the threshold of viability as 23+0 to 24+6 weeks¹.
- Birth weight and intrauterine growth restriction (IUGR) affect survival.
- Growth restricted infants are at increased risk of perinatal asphyxia, hypoglycaemia, necrotising enterocolitis and neurodevelopmental morbidity
- There is little recent data reporting outcomes of extremely growth restricted preterm infants (<500g).
- One Japanese study looked at short term outcomes of infants <500g surviving to NICU admission and reported survival of 55% (n=1473) ².

OBJECTIVES

- To assess short and long term outcomes of infants born ≥23 weeks and weighing ≤500g in a tertiary Irish maternity hospital.

METHODS

- This was a retrospective observational study at NMH (admits ~120 infants <1500g/year).
- Infants ≤500g and ≥23 weeks’ gestation live born between Jan 2012 and Dec 2016 were identified and their notes reviewed.

RESULTS

	Survivor (n=3) n (%)	Non-survivor (n=9) n (%)
Female	3 (100)	7 (78)
Gestational age	24+4 weeks	24+4 weeks
Birth weight	473g	419g
Singleton	2 (66)	3 (33)
Antenatal steroids	3 (100)	5/7 (71)
PPROM	1 (33)	3/7 (43)
Maternal PET/HELPP	2 (66)	4/7 (57)
Caesarean section	2 (67)	5 (56)
Apgar score>4 at five minutes	2 (67)	4 (44)

Table 1

- Twelve infants met inclusion criteria (Table1).
- One infant had a lethal congenital anomaly and was excluded from further analysis.
- All infants were inborn however five were transferred to NMH antenatally.
- Resuscitation was initiated in the delivery room (DR) for 8/11(73%) infants
- The overall survival was 3/11 (27%). One infant died in the DR despite resuscitation
- 3/8 (37%) neonates offered resuscitation survived to discharge.
- All three survivors had a prolonged and complex NICU course (Table 2). None of the survivors had intraventricular haemorrhage or sepsis and one had cystic PVL.

Graph 1: Outcome by gestational age

DISCUSSION

- Despite the majority of infants in our cohort being offered intensive care the survival rate was low (37%).
- Infants that survived had prolonged and complicated neonatal courses.

CONCLUSION

- Infants at the extremes of viability require significant resources and expertise and should be delivered in tertiary centres.
- This information can be used to counsel parents in these difficult clinical settings.

REFERENCES

- 1)Perinatal Management of Pregnant Women at the Threshold of Infant Viability– the Obstetric Perspective, RCOG, Scientific Impact Paper No. 41 (11/02/2014)
- 2) Early Mortality and Morbidity in Infants with Birthweight of 500 Grams or Less in Japan, Inoue H et al., J Pediatr 2017;190:112-7

Table 2

Infant #	GA (wks.)	BW (g)	Outcome	ETT ventilation (days)	Length of stay (days)	Complications	Bayley’s 3 composite score
1	23+6	440	Discharged home D131	30	131	RDS CLD- discharged on home oxygen PDA Pulmonary haemorrhage Oesophageal perforation ROP – no treatment required PVL Anaemia of prematurity	Cognitive 95 Language 106 Motor 91
2	25+5	400	NICU death D2	2	2	RDS Pulmonary haemorrhage	N/A
3	24+3	420	NICU death D2	2	2	RDS Pulmonary haemorrhage	N/A
4	26+5	470	NICU death D27	4	27	Perforated NEC	N/A
5	26+4	490	Discharged home D112	26	112	CLD – discharged on home oxygen PDA RDS Oesophageal perforation ROP- no treatment required Anaemia of prematurity	Cognitive 90 Language 86 Motor 97
6	26+3	465	NICU death D11	11	11	Severe RDS Refractory hypotension	N/A
7	23+3	490	Discharged home D160	24	160	RDS CLD- discharged on home oxygen PDA Anaemia of prematurity	< 2 years corrected age
8	24+2	460	Delivery room death	N/A	N/A	N/A	N/A