



Prediction of neonatal mortality from a Thai neonatal unit

Chirabat Techato

Neonatal unit, Songkhla hospital, Thailand

Email: chirabat@gmail.com, jeerabat.ta@cpird.in.th



Introduction:

The neonatal mortality rate is an indicator of the quality of the infant and mother's care. In developing countries, it is found that there is a high rate of neonatal death, as a result, it is necessary to develop the assessment of a high-risk neonate.

Methods: A prognostic prediction study with a clinical prediction score was developed. 386 patients were admitted in the Songkhla's neonatal unit from January 2020 to December 2022.

Table 1: Comparison of clinical characteristics

Characteristics	Dead (n=31)	Survive (n=355)	p-value
Maternal no ANC n(%)	22.6	5.1	0.003
Multiple gestation n(%)	22.6	5.9	0.005
Maternal drug abuse n(%)	22.6	6.2	0.006
Maternal preeclampsia n(%)	16.1	15.8	1.000
5 min Apgar (mean±SD)	5.3±2.6	8.6±1.0	<0.001
Gestation age, wk (mean±SD)	30.7±5.7	36.2±3.4	<0.001
Birth weight, gm (mean)	1448.6	2500.7	<0.001
Small for gestational age n(%)	22.6	8.7	0.165
Body temp (mean±SD)	35.9±0.9	36.8±0.7	<0.001
Shock in 24 hr n(%)	54.8	14.9	<0.001
Intubation n(%)	83.9	13.5	<0.001
Surfactant use n(%)	35.5	5.1	<0.001
Anomaly n(%)	16.1	3.4	0.009
RDS n(%)	58.1	16.6	<0.001

Table 2: Predictors of neonatal mortality at a bivariate analysis

Predictors	OR	95%CI	p-value	Beta	Score
Apgar score 5 min					
8-10	1.00	reference	-	-	0
5-7	1.87	0.57-3.18	0.005	2.81	13.5
0-4	3.27	1.42-5.13	0.001	3.46	24
Birth weight (g)					
>1501	1.00	reference	-	-	0
1001-1500	0.61	-0.77-1.98	0.39	0.86	4.5
750-1000	0.14	-1.95-2.22	0.89	0.13	1
<749	2.18	0.39-3.96	0.02	2.4	16
Body temperature (°C)					
>36.5	1.00	reference	-	-	0
<36.5	0.75	-0.37-1.84	0.19	1.3	5.5
Vital sign	1.00	reference	-	-	0
Shock in 24 hours of life	1.64	0.55-2.73	0.003	2.95	12
Respiratory support	1.00	reference	-	-	0
Intubation	1.35	0.07-2.63	0.039	2.07	10

Table 3: Distribution of Dead and Survive into low and high probability categories

Probability categories	Score	Dead (n=31)	Survive (n=355)	PPV	95%CI	p-value
Low	<17	3	315	0.9	0.2, 2.7	<0.001
High	>17	28	40	41.2	29.3, 53.8	<0.001
Mean±SD		5.9±9.1	36.6±16.6			

Conclusions: The established scores are able to be used to monitor high-risk of neonatal death, accommodate close infant care, and conduct treatment plans for neonatologists. In addition, it could be used together with a primary prediction of sickness for parents.