EVALUATION OF NEAR-PATIENT B-TYPE NATRIURETIC PEPTIDE ASSAY IN PREDICTING PATENT DUCTUS ARTERIOSUS CLOSURE IN PRETERM INFANTS ($\leq 27+6$ WEEKS) WITH LOW DOSE INDOMETACIN PROPHYLAXIS REGIME

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Background and aims: Prophylactic indometacin has been used for the prevention and closure of patent ductus arteriosus (PDA). The clinical assessment of PDA can be unreliable with echocardiography providing a more objective method of assessment, however this requires skilled personnel. Serum levels of B-type Natriuretic peptide (BNP) shows good correlation with PDA size in infants studied who have not received prophylactic indomethacin.

Our aim was to evaluate bed-side measurement of whole-blood BNP with regards to prophylactic use of 6 doses of indometacin (0.1mg/kg/dose/day), comparing results with colour-flow echo-cardiography findings, determining if the measurements could reliably inform the duration of the indometacin prophylaxis and clinical management.

Methods: 39 eligible babies of $\leq 27+6$ gestation born in our level 3 NICU in June 2006-February 2008 had near-patient whole-blood BNP assay and colour-flow Doppler echocardiography carried out on Days 4 and 7 of life by a single operator. This was categorised with echocardiography into open (haemo-dynamically significant), closing (non-haemo-dynamically significant) and closed (no luminal flow). The attending clinicians were blinded to the results of BNP and echocardiography.

Results:

	Day 4: Open v Closed	Day 4: Open v Closing	Day 4: Open + Closing v Closed	Day 4: Open v Closing + Closed	Day 7: Open v Closed	Day 7: Open v Closing	Day 7: Open + Closing v Closed	Day 7: Open v Closing + Closed
Area Under Curve (p value)	1.000 (p=0)	0.961 (p<0.0001)	0.766 (p=0.0009)	0.972 (p<0.0001)	1.000 (p=0)	1.000 (p=0)	0.823 (p<0.0001)	1.000 (p=0)
Criterion Cut off (pg/ml)	>93.2	>141	> 42.4	>141	>165	>216	>44.5	>216
Sensitivity (%) / Specificity (%)	100.00 / 100.00	100.00 / 94.74	80.65 / 75.00	100.00 / 96.30	100.00 / 100.00	100.00 / 100.00	78.26 / 87.50	100.00 / 100.00

[Table 1: Day 4 and Day 7 PDA BNP Data Results]

Conclusions: BNP is a useful marker of ductal patency, correlating well with colour-flow echocardiography, and could be used as a valid diagnostic tool to inform the length of prophylactic indometacin treatment and further clinical management.