Table 3-1 **Variation of Mean Blood Pressure* with Birth Weight at 3 to 96 h Postnatal Age**

	TIME (h) POSTNATAL AGE								
Birth weight (g)	3	12	24	36	48	60	72	84	96
500	35/23	36/24	37/25	38/26	39/28	41/29	42/30	43/31	44/33
600	35/24	36.25	37/26	39/27	40/28	41/29	42/31	44/32	45/33
700	36/24	37/25	38/26	39/28	42/29	42/30	43/31	44/32	45/34
800	36/25	37/26	39/27	40/28	41/29	42/31	44/32	45/33	46/34
900	37/25	38/26	39/27	40/29	42/30	43/31	44/32	45/34	47/35
1000	38/26	39/27	40/28	41/29	42/31	43/32	45/33	46/34	47/35
1100	38/27	39/27	40/29	42/30	43/31	44/32	45/34	46/35	48/36
1200	39/27	40/28	41/29	42/30	43/32	45/33	46/34	47/35	48/37
1300	39/28	40/29	41/30	43/31	44/32	45/33	46/35	48/36	49/37
1400	40/28	41/29	42/30	43/32	44/33	46/34	47/35	48/36	49/38
1500	40/29	42/30	43/31	44/32	45/33	46/35	48/36	49/37	50/38

*Numbers refer to average MBP/tenth percentile for MBP.

From: Watkins AMC, West CR, Cooke RWI. Blood pressure and cerebral haemorrhage and ischaemia in very low birthweight infants. Early Hum Develop 1989;19:103–110, Figure 2. Used with permission from Elsevier Ltd.

values of 20 to 23 mm Hg observed in the 500 to 800 g infants. These authors cautioned against treatment for a low blood pressure value alone unless there are co-existing signs of hypoperfusion, such as poor capillary return, oliguria, and metabolic acidosis (see below).

In 1983 Adams et al. (84) reported findings of a study of continuously recorded blood pressure in 15 infants with birth weight ≤1500 g, utilizing a system capable of measuring and storing 60 data points each minute. When a linear regression analysis of hourly mean blood pressure as a function of postnatal age was calculated, these investigators found significant correlations for gestational age and birth weight with the slopes and intercepts of the linear equations. While these authors noted that the relatively steep rise in mean blood pressure in the less mature infants may be a predisposing factor in the development of intraventricular hemorrhage, it should be noted that birth weight was ≥1180 g in 13/15 neonates. Subsequently, Cunningham et al. (85) performed continuous recordings of blood pressure and noted cyclical variation with hypertensive "waves." They postulated that this blood pressure instability might predispose to intraventricular hemorrhage (86). Cunningham et al. (87) subsequently reported mean blood pressure ranges in 232 very low birth weight neonates. Intraventricular hemorrhage (IVH) was

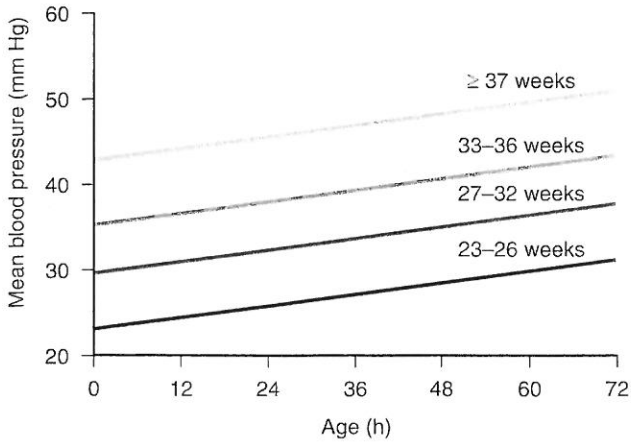

FIGURE 3-4 Mean blood pressure in neonates with gestational ages of 23 to 43 weeks ($n = 103$, neonates admitted to NICU). The graph shows the predicted mean blood pressure during the first 72 h of life. Each line represents the lower limit of 80% confidence interval (two-tail) of mean blood pressure for each gestational age group; 90% of infants for each gestational age group will be expected to have a mean blood pressure value equal to or above the value indicated by the corresponding line, the lower limit of the confidence interval. *Nuntnarumit P, Yang W, Bada-Ellzey HS. Blood pressure measurements in the newborn. Clin Perinatol 1999;26:981–996, Fig. 3. Used with permission from Elsevier.*

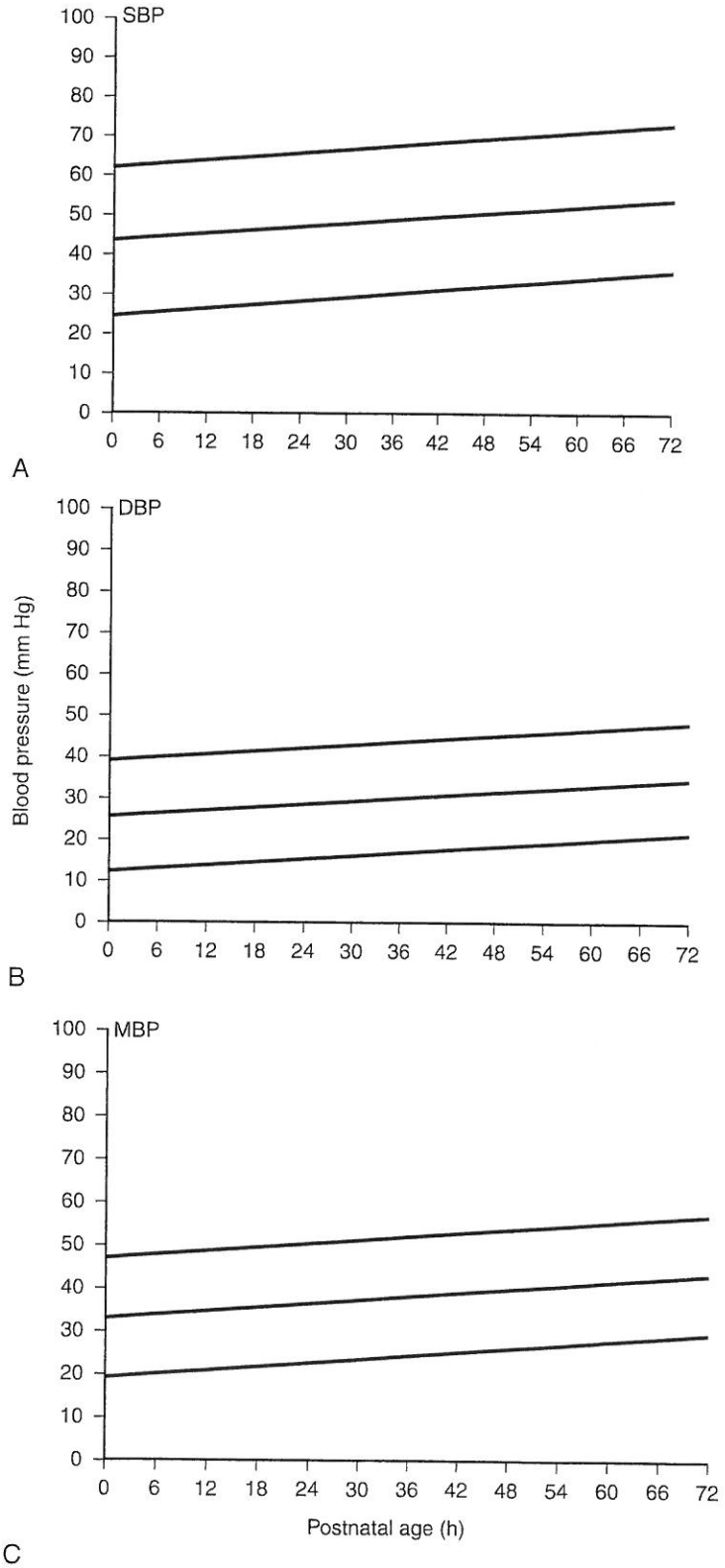

FIGURE 3-6 Change in systolic blood pressure (SBP) (A), diastolic blood pressure (DBP) (B), and mean blood pressure (MBP) (C) in neonates ≤ 1000 g birth weight ($n = 36$) during the initial 72 h postnatal. Lines represent means and 95% confidence intervals ($P < 0.0001$). Equations for lines of best fit were: SBP = $0.17x + 43.2$; DBP = $0.13x + 25.8$; MBP = $0.14x + 32.9$. In each instance, the y-intercept was significantly lower ($P < 0.001$) than the value for comparable lines of best fit in infants with birth weights 1001–1500 g; however, no significant differences in slopes for the lines of best fit were observed between the two birth weight groups. *LeFlore JL, Engle WD, Rosenfeld CR. Determinants of blood pressure in very low birth weight neonates: lack of effect of antenatal steroids. Early Hum Dev 2000;59:37–50, Fig. 2. Used with permission from Elsevier.*