

THE EFFECT OF PHOTOTHERAPY ON VOIDING PATTERN IN NEWBORNS WITH HYPERBILIRUBINEMIA

Hypothesis / aims of study

We explore the effect of phototherapy on voiding pattern in newborns with hyperbilirubinemia (HB).

Study design, materials and methods

A total of 26 newborns aged 4-14 days after birth diagnosed with mild to moderate HB were included in this study. Put the naked newborns into the phototherapy carts which were set with the same parameters. 8 hours free voiding pattern of the newborns was observed per day, 4 hours (12:00-16:00) with phototherapy and 4 hours non-phototherapy (08:00-12:00). The liquid was inputted to all newborns by vein uniformly and continuously by standard protocol in both periods. The voided time, voided volume and post-void residual (PVR) volume were recorded. The diaper weight difference before and after voiding was defined as voided volume and the PVR volume was determined by ultrasound. Calculate the voided frequency, total voided volume, average voided volume and average PVR volume in phototherapy period and non- phototherapy period. Data were analysed by paired t-test.

Results

A total of 113 times voiding were recorded, 45 times in phototherapy period and 68 times in non- phototherapy period. Comparing the phototherapy period and non- phototherapy period, the voided frequency, average voided volume and total voiding volume in 4 hours was significant lower [(1.73±1.00 times) VS(2.62±0.70 times), (16.26±9.34 ml) VS (20.84±9.05 ml) and (30.83 ±24.45 ml) VS (54.32 ±30.20 ml), ($P<0.05$), respectively]. However, there was no difference of average PVR volume between the two periods.

Table 1 the free voiding parameters of HB newborns (n=26)

	voided frequency (time)	Average voided volume (ml)	Average PVR volume (ml)	total voided volume (ml)
phototherapy	1.73±1.00	16.26±9.34	11.73±10.81	30.83 ±24.45
non- phototherapy	2.62±0.70	20.84±9.05	13.65±9.72	54.32 ±30.20
t	5.536	2.744	1.061	3.038
p	0.000	0.011	0.299	0.000

Interpretation of results

Blu-ray as a heat source continues to generate heat when the newborns receiving phototherapy. Environmental changes lead to increased body temperature of the newborns in the phototherapy carts. Then invisible water loss increases and urine output decreases. The reason of urine output decreased may be related with the exacerbating of body fluids lost and the surrounding tissue hypo perfusion. In this study, there was no difference of average post-void residual volume between non- phototherapy and phototherapy period indicated that post-void residual volume is related with the immature bladder of the newborns.

Concluding message

There was a significant change of voiding pattern in HB newborns with phototherapy.

Disclosures

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