Neonatal Side Effects of Intrathecal Morphine for Painless Labor

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Intrathecal morphine is increasingly becoming popular for painless labor particularly because of its high efficacy and infrequent side effects on the mother(1-3). However, the effect of intrathecal morphine on the baby at birth and its behavior during the first days of life have been insufficiently evaluated. The present study was therefore, undertaken to study the effect of intrathecal morphine on the newborn at birth and its subsequent behavior.

Material and Methods

Fifty uncomplicated primipara parturients who were between 16-35 years, with cephalic presentation, not addicted to narcotics and willing to undergo intrathecal analgesia by informed consent were included in the study. One mg preservative free morphine (Bengal Immunity Co. Ltd.) was administered into the subarachnoid space when the cervix was 2-4 cm dilated and the Bishop score was 8-10, so that all the mothers had painless labor. Fetal heart rate was monitored before and after morphine administration. All babies were assessed for asphyxia at birth by Apgar scoring at 1,5 and 10 minutes, respectively. All newborns were examined at 4-6 hours for Moro, sucking, rooting, palmar and plantar grasp, and placing reflexes. The responses were graded by the system of Prechtl and Beintema(4).

The neurobehavioral assessment of the newborns was done at 24-36 hours of age using eight items selected from Brazelton neonatal behavior assessment scale(5) and thus response decrement to light, response decrement to rattle, orientation response to inanimate visual stimuli, orientation response to animate auditory stimuli, alertness, cuddliness and self quietening activity were assessed in respective states for examination in 3-4 settings(6,7).

Results

Forty nine parturients (98%) had no significant change in fetal heart beat following intrathecal morphine while all the mothers had painless labor. One lady, however, had increase in heart rate 11-20 per minute but there was no fetal distress.

Only 2 of 50 babies (4%) had a 1 mins. Apgar score between 4-7. The Apgar score of all babies at 5 and 10 min was 10.

More than two-thirds of the babies had good neonatal reflexes (*Table I*). Only about 2% babies had a poor rooting, plantar grasp and palmar grasp when assessed 4-6 after birth.

The neurobehavioral assessment of newborns is depicted in *Table II*. The response decrement to light rattle and bell (which indicate the infant's capacity to shut down disturbing stimuli) was good or fair in over 70% of babies. Similarly, with

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TABLE I—*Neonatal Reflex Behavior*

Neonatal	Good	+++	Fair	++	Poor	+
	No.	%	No.	%	No.	%
Moro	46	92	4	8	0	0
Sucking	48	96	2	4	0	0
Rooting	34	68	14	28	2	4
Palmar grasp	37	74	12	24	1	2
Plantar grasp	32	64	17	34	1	2
Placing	41	82	9	18	0	0

TABLE II—*Neonatal Neurobehavioral Assessment (n = 50)*

Neurobehavioral assessment item	Brazelton score					
	1-4		5-7		8-9	
	No.	%	No.	%	No.	%
Response decrement to light	14	28	34	68	2	4
Response decrement to rattle	7	14	42	84	1	2
Response decrement to bell	12	24	36	72	2	4
Orientation response to inanimate visual stimuli	8	16	36	72	6	12
Orientation response to animate auditory stimuli	14	28	22	44	14	28
Alertness	3	6	30	60	17	34
Cuddliness	12	24	28	56	10	20
Self quietening activity	15	30	31	62	4	8

respect to orientation responses, and alertness, most babies had good to fair responses.

Discussion

Systemic administration of morphine to the mother has been associated with significant respiratory and neurodepressian of the newborn(8), but when given intrathecally for painless labor, the hazards appear to be insignificant.

Nag *et al.*(3) observed that 28% parturients showed fetal heart rate variation of 11-20 per minute, though none had fetal distress. In the present study only 2% parturient mothers showed fetal heart rate variation of more than 10 per min following intrathecal morphine administration.

Nearly 96% babies had Apgar score 8-10 at one min in the present study. Baraka *et al.*(1) have also reported Apgar score 7-9 in 19 out of 90 newborns after intrathecal morphine, thus supplementing the present findings. The lack of respiratory depression with intrathecal morphine is explained by the observations of Bonardt *et al.*(9), who observed that fetal as well as maternal con-

centration of morphine following intrathecal morphine were 6 ng/ml or less, a range which does not cause neonatal respiratory depression.

Majority of babies had good or fair neonatal reflexes inspite of administration of morphine intrathecally.

The neurobehavioral assessment of these babies revealed that the infants had a good capacity to shut down disturbing stimuli, had good orientation responses to environmental stimuli and were generally alert. Similar studies of neonatal neurobehavior following maternal intrathecal morphine administration were unavailable to us.

It is concluded that maternal intrathecal morphine administration has no significant behavioral or neurological effect on the babies and it may be considered to be safe in labor medication.

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Congenital Short Small Bowel Presenting as Neonatal Intestinal Obstruction

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Problems arising from congenitally short length of small intestine have been occasionally reported and its association with hypoperistalsis has also been documented, mostly associated with hypertrophic pyloric stenosis. But short length of

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