

survival rate was significantly better in babies with apnea of prematurity (69.2%) as compared to those with infection and apnea (23.1%). When compared to infection (all cases) where the survival rate was 60%, infection with apnea had a significantly poorer outcome ($p < 0.05$) indicating thereby that apnea is a manifestation of severe sepsis(4). Apnea of prematurity and fewer episodes (between 1 to 2) were associated with a better survival rate. Tudehope studied a cohort of 164 infants with apnea of prematurity and reported that after correction for low birth weight, mechanical ventilation and chronic lung disease, apnea *per se* had no adverse effect on intellectual performance(5).

We conclude that all babies < 32 weeks gestation need to be closely monitored for apnea. About half the cases are related to infection and one fourth to apnea of prematurity. Apnea of prematurity does not alter the outcome and majority can be managed without ventilation. Apnea occurring in association with sepsis, however, carries a

poor prognosis and about half of these need ventilatory support.

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Parental Presence During Anesthesia Induction

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Parents' presence in the operation theater when babies are being anesthetised has been shown to be beneficial to the babies(1,2). By allowing the children to remain calm and co-operative, a smooth and

easy induction is ensured. What is not well studied, however, is the stress this causes to the parent and whether they are upset by this experience. Therefore, while the presence of the parent is beneficial to the

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offspring, it is equally important to evaluate their attitude towards witnessing their children being anesthetised.

Most surgeons and anesthetists are reluctant to allow parents inside the operation theater when children are being anesthetised. The anesthetists' reluctance may originate from being "watched" by the parents and the fear of something going wrong(1). There is also a concern that it may cause undue anxiety and stress to the parents. This is specially so in India where the parents may come from rural areas or belong to low socio-economic/educational status. Also, it has been shown in one study that the presence of highly anxious parents in the theater may upset the children(3). This study was, therefore, carried out to evaluate the effects on parents when they watched their children being induced in the operating room, and determine whether this practice can be routinely recommended.

Subjects and Methods

Thirty parents (either mother or father) whose children were undergoing various surgical procedures were evaluated. The parents were not prepared beforehand for accompanying the child into the theater. The decision as to which parent would accompany the child was left to them. It was then explained to them that their presence in theater would be beneficial for their child. Measurement of the pulse rate was taken as the simplest, non-invasive test of anxiety and the physiological response to stress. The pulse rate of the parent was recorded in the pre-operative room and again during the induction. This was done unobtrusively by a staff nurse or a lady doctor in case of mothers and male doctor in case of fathers. After induction they were escorted out of the operating room. The parent's reaction of the entire experi-

ence inside the theater was noted. Their attitude was classified as: (a) appreciative and keen, (b) calm and composed, (c) anxious, (d) upset/cried or (e) hysterical/fainted. This assessment was made by a resident doctor not directly involved with the study.

Results

There was no instance when both parents refused to go in. Of the 30 parents, none had visited the operation theater ever before. The age range of parents was 20 to 35 years. Sixteen mothers and 14 fathers participated in the study. Most parents came from a rural home, were at best educated to primary school and belonged to low to low-middle socio-economic status. The pulse rate variation of the parents before and during induction is shown in *Table I*. Three (10%) parents showed a substantial rise in pulse rate (an increase of more than 15% from baseline); there was no change in 6 (20.0%); 14 (46.6%) parents had an increase by upto 15% of the baseline pulse rate while 7 (23.3%) parents showed a decrease in pulse rate. The parents' attitude towards their presence inside the theater is summarized in *Table II*. In all, 27 (90%) parents tolerated the experience well. Fourteen (46.7%) of the parents actually liked to be inside. None of the parents became hysterical or fainted. Incidentally, 2 parents wished to stay on and see the surgical procedure also! All children remained calm in the parents' arms during induction of anesthesia.

Discussion

The benefits of the parent's presence during anesthesia induction in children have been shown by various authors(1,2). This practice helps in ensuring smooth induction with the child remaining calm and quiet. The parents experience of visiting the theater and witnessing induction of their

TABLE I-Pulse Rate Variation of Parents (n=30).

Pulse Rate Variation	Number
No change	6
Increase by upto 15% of baseline (mean 7.8%, range 2-15%)	14
Increase more than 15% (mean 36.6%, range 25-57%)	3
Decrease (mean 11.9%, range 2-19%)	7

TABLE II -Parents Attitude During Induction (n=30).

Attitude	n(%)
Appreciative and keen	14 (46.7)
Calm and composed	10 (33.3)
Anxious	3 (10.0)
Upset/crying	3 (10.0)
Hysterical/fainted	0 (0.0)

child has not been well evaluated. While some studies have shown unequivocal benefit to the child(1,2), others have concluded that parental presence may be beneficial to the child if the parents themselves are calm, but not so if they are highly anxious(3). Surgeons and anesthetists alike, generally presume that the parents would not be able to withstand the strange theater environment, especially when their own child is about to be operated. But is it true that this experience is more traumatic than the unwilling or forceful separation when their child is being taken away from them into the operating theater?

The pulse rate recording, in the present study did not show significant variation before and during induction. There was a rise in pulse rate in 17 parents of whom 14 showed only a marginal rise. Most parents (90%) tolerated the experience well. A vast majority (80%) of the parents in our study

remained calm and were keen to be present inside theater in contrast to another study where only 47% remained calm(3). Almost half (46.7%) showed keenness to go in and would do the same if required another time. This keenness to be present in the operation theater has been reported by others(2,4). Ten per cent were anxious and another 10% were upset. This may have been because the parents had not been adequately prepared beforehand. Most of the parents in this study were educated at most upto primary school level only and belonged to low socio-economic strata. This suggests that low educational background and social status did not materially influence their attitudes to the event. This is in contrast to an earlier study in which parents selection and education were reported to be important factors(1).

Our results indicate that the parents like to be with their child during anesthesia induction and seem to prefer a more gradual separation from their child. We feel that the stress of being inside the theater and witnessing a safe and smooth induction of their child may be less than the forceful separation from them when their child is being wheeled in from the pre-operative room. Most children did not cry in their parents presence as they were wheeled into the theater, while in our past experience, when the parents were kept out, this was common even in pre-medicated children. This study has shown that the parents, presence in the operating theater is safe and the surgeon's feelings to the contrary are largely unfounded. This practice is good for the child and is well tolerated by the parents and in our opinion, should be a routine practice in all pediatric surgical theaters.

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