

Sleep deprivation for radiological procedures in children

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Sir,
Radioimaging procedures in children often require sedation. Many centers, including ours, lack a dedicated team to provide sedation due to constraints of resources and time. Any innovation to decrease sedation requirement is welcome. Sleep deprivation had been tried routinely at some centers prior to radiological procedures [1]. We implemented the same and retrospectively analyzed the results and present our experience.

Medication used for children ($n=41$) requiring sedation for noninvasive radioimaging was reviewed. These children were divided into two groups: 18 were sleep-deprived prior to procedure and 23 were not sleep-deprived. The dosages of drugs used and the adverse events documented were analyzed.

We included only inpatients in this study. Sleep deprivation was defined as <5 h of night sleep. Parents were instructed to wake the child after 5 h of sleep. Usually the child would be woken up at 3 A.M. and engaged in play. The duty nurses or residents would ensure that the child was awake. In the case of infants the parents were encouraged to keep the infant awake for at least 4 h before the procedure.

The two groups were comparable in terms of age, gender, imaging procedure and the duration of procedure.

The most common primary sedation used was oral chloral hydrate with a mean dosage of 66.87 ± 29.05 mg/kg for the sleep-deprived group and 61.89 ± 38.93 mg/kg for the non-sleep-deprived group. Non-sleep-deprived patients required an additional 0.19 mg/kg of diazepam IV compared to the sleep-deprived group ($P < 0.05$). None of the sleep-deprived patients required rescue medicines (IV promethazine, IV pentazocine), except one child who required extension of sedation beyond 3 h (for combined CT head and MRI spine). Two children with hyperactivity who had failed sedation earlier were managed with oral sedation alone after sleep deprivation. There was no serious adverse event in either of the two groups.

We concluded that pre-procedural sleep deprivation decreases the need for IV sedation and lowers sedation failure rates.

Even though this study included only inpatients, we think the same finding can apply to outpatients. For outpatients, parents/guardians of children are directed to wake the child after 5 h of sleep and encouraged to prevent napping during the journey to the hospital. On the negative side, sleep deprivation for a child means sleep deprivation for parents! However, the need for less sedative medication allays parental anxiety and ensures cooperation.

We now recommend sleep deprivation before planned imaging procedures more often at our centre.

Reference

1. Shields CH, Johnson S, Knoll J et al (2004) Sleep deprivation for pediatric sedated procedures: not worth the effort. *Pediatrics* 113:1204–1208

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