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FROM PHANTASMAGORIA TO REALITY?

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Identification of delirium in critically-ill children is challenging because diagnosis requires expertise in pediatric psychiatry and takes long periods of time at the bedside. In early descriptive studies, psychiatrists used DSM criteria to diagnose delirium in children who were referred by hospital services for agitated behavior. A study of 1,027 inpatient psychiatric consultations over 4 years at a single children's hospital showed a delirium prevalence of 8.2% (84 diagnosed cases) [1]. Another study of 877 psychiatric consultations over 4 years at a single pediatric intensive care unit (PICU) revealed a delirium prevalence of 4.5% (40 diagnosed cases) [2].

The actual prevalence of delirium may have been higher because psychiatric evaluations occurred only when the primary team requested a consult. Patients with hypoactive delirium were assumed to exhibit sickness behavior. We do not know how many critically-ill children have delirium because we do not recognize its signs and do not actively look for them. A recent survey of PICU clinicians showed that only 2% routinely used a delirium screening tool [3].

Three screening tools for pediatric delirium have been validated for use: the pediatric confusion assessment method for the intensive care unit (PCAM-ICU), the preschool CAM-ICU (psCAM-ICU), and the Cornell assessment of pediatric delirium (CAPD). Validation studies of these tools showed a higher delirium prevalence than previously reported. The PCAM-ICU detected a delirium prevalence of 11% in children 5 years old [4]. The psCAM-ICU detected a delirium prevalence of 44% in children 6 months to 5 years old [5]. The CAPD detected a delirium prevalence 24% in children 0 months to 21 years old (calculated from sensitivity and specificity values reported by Traube et al [6]). These rates were greater than previous reports because the screening tools allowed researchers to objectively evaluate all patients for delirium rather than focusing on those with agitation.

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In this issue of *Pediatric Critical Care Medicine*, Meyburg et al describe the fluctuant course of postoperative delirium in children by using the CAPD. This is the first study to use a validated pediatric delirium screening tool without paired psychiatric evaluations. The study lasted 6 months and evaluated 93 pediatric patients recovering after elective surgery. The authors revealed that postoperative delirium prevalence is 65.5% and can begin as early as the first postoperative day [7].

Based on the onset and duration of delirium, as well as the CAPD score, the investigators categorized postoperative delirium into mild and severe forms. Patients with severe postoperative delirium experienced a longer duration of mechanical ventilation and length of stay, and this has been seen in previous studies [8, 9]. However, delirious patients did not have a higher severity of illness, which differs from a previous report showing that delirium was associated with a higher PRISM score [10]. In addition, the investigators uncovered a subset of patients who had severe delirium that occurred early and had a short duration. These patients had similarities to adults with subsyndromal delirium, but further studies with paired psychiatric evaluations should be performed to determine if CAPD scores correlate with delirium subtypes and severity.

This study was ideal for a semi-quantitative analysis of the effects of analgesic and anxiolytic medications on the onset and duration of postoperative delirium. Benzodiazepines have been linked to the development of delirium, while dexmedetomidine has been associated with decreased delirium [11]. An analysis of the analgesedatives used in these patients would have provide valuable information on this modifiable risk factor for delirium.

The study by Meyburg et al illustrates how the CAPD might be used to lead pediatric delirium research out of phantasmagoria and into reality [7]. By using the CAPD to identify and meticulously characterize postoperative delirium, Meyburg et al pioneered a new way to describe and communicate about pediatric delirium. The scientific impact of a scoring system, as the CAPD was used in this study, is that researchers can compare prevalence, presentation, and outcomes in a meaningful way. This scoring system can facilitate multi-center studies by being the interface on which to describe delirium. The CAPD might also transition from a screening tool to a theragnostic tool. After a CAPD score of 9 identifies delirium, subsequent scoring after therapeutic intervention might be used to evaluate patient response.

It is tempting to use the CAPD in these capacities, but we must remember that it was validated and recommended as a screening tool [12]. Hasty use and interpretation of results would confuse what little knowledge we have on pediatric delirium. As we begin to use pediatric delirium screening tools in research, we must frequently check the accuracy of each tool. A study comparing the prevalence and characterization of delirium obtained by the three screening tools and a psychiatric evaluation would guide researchers on the utility of each tool to lead us out of phantasmagoria.

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