

TABLE 2-6 Symptom Threshold Values for Pediatric Carbon Monoxide Toxicity

Symptom	Threshold COHb (%)	Average COHb (%)	Percentage of Patients ^a (%)
None	<15	<15	100
Nausea	16.7	27.1	100
Vomiting	19.8	29.4	78.6
Headache	16.7	28.3	91.6
Lethargy	18.6	25.9	78.6
Visual symptoms	24.5	32.5	25.0
Syncope	24.5	31.6	64.3
Seizures	36.9	36.9	6.3

^aThe percentage of patients showing the respective symptom refers to the 16 patients with a COHb of more than 15% except for asymptomatic patients ("None"), which refers to the 12 patients with a COHb of less than 15%.

Source: Adapted from Crocker and Walker 1985.

consciousness, but no coma) did not produce manifest sequelae except for a momentary standstill in the child's progress of about 2 months, but their negative behavior was found to be amplified (more nervous, more irritable, and more anxious). However, it was not possible to determine whether these behavioral disturbances were a direct effect of the CO intoxication or whether they were due to neurophysiologic causes or to the stressful psychological conditions surrounding the intoxication. In one case of severe intoxication (symptoms included coma; a COHb of 37%), developmental level regression (motricity and language), violent anger, and nervousity were observed.

In eight children 4 to 9 years old, the intoxication did not alter the intellectual capacities, but in six cases (reported COHb concentrations of 4%, 6%, 25%, and 27%; missing data for two children) the mnestic and instrumental aspects of the cognitive development were modified (the other two were difficult to evaluate due to intellectual retardation and language retardation). Visual-spatial perceptions and topographical memory were particularly perturbed, as was auditory memory.

In 10 children over 10 years of age, difficulty in perceiving and organizing the material to be memorized either auditorily or visually was found in the three children less than 12 years of age (COHb of 26%, 27%, and 36%). With the three children over 14 years of age, one case (30% COHb) of serious balance impairment was observed and two cases showed some slowness and instability (COHb of 26% and 30%).

Meert et al. (1998) evaluated clinical characteristics and neurologic outcome of all children with CO poisoning admitted to the Children's Hospital of Michigan, Detroit, between January 1987 and December 1996. Exposures were categorized as (1) severely toxic when COHb was >25%, (2) toxic when COHb was between 10.1% and 25%, (3) suspected toxic when COHb was ≤10% with