

Reference Values for Nocturnal Home Pulse Oximetry during Sleep in Primary School Children.

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Objective

To provide reference values for pulse oximeter saturation (SpO₂) in primary school children, measured at home during sleep.

Methods

Recordings of SpO₂ and signal quality from 100 children were randomly selected from a larger population-based sample intended to study the prevalence of sleep-disordered breathing. Recordings were analyzed for the duration of artifact-free recording time (AFRT), minimum SpO₂ (SAT_{min}) and median SpO₂ (SAT₅₀), the SpO₂ below which the child spent 5% of AFRT (SAT₅), and the SpO₂ below which the child spent 10% of AFRT (SAT₁₀). In addition, the time in seconds with SpO₂ \leq 90% per hour of AFRT (TI₉₀) was calculated, as were the number of falls in SpO₂ by \geq 4% per hour of AFRT (DI₄), the number of falls in SpO₂ to \leq 90% per hour of AFRT (DI₉₀), and the number of falls in SpO₂ to \leq 92% per hour of AFRT (DI₉₂).

Results

Ten recordings had to be excluded because of insufficient AFRT (< 5 h). Mean age of the remaining 90 children (54 girls) was 9.3 years (SD, 0.6). Median (range; fifth centile) values for SAT_{min}, SAT₅, SAT₁₀, and SAT₅₀ were 93% (76 to 97; 87.5), 97% (88 to 99; 95), 97% (89 to 99; 96), and 98% (94 to 100; 97). Median values (range; 95th centile) for TI₉₀, DI₄, DI₉₀, and DI₉₂ were 0.0 s (0.0 to 5.8; 1.6), 0.8 (0.0 to 6.1; 3.9), 0.0 (0.0 to 1.2; 0.2), and 0.0 (0.0 to 2.0; 0.6).

Conclusion

Baseline SpO₂ values < 97% were uncommon in these children, as were intermittent desaturations to \leq 90%. These data may serve as a basis for the interpretation of clinical recordings of SpO₂ in children referred for sleep-related breathing disorders.