Airway management in children with major craniofacial anomalies.

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OBJECTIVES: Delineation of clinical characteristics affecting the airway in a cohort of craniofacially deformed children. What factors differ between patients requiring and those not requiring surgical airway intervention? What factors predispose to the need for tracheotomy? When can decannulation be expected if tracheotomy is required? What interventions aid decannulation? STUDY DESIGN: Five-year retrospective chart review at tertiary center. METHODS: Two hundred fifty-one patients met the following entry criteria: enrollment in the New York University Institute of Reconstructive and Plastic Surgery's Craniofacial Clinic and admission to Tisch Hospital in Manhattan for surgery from 1990 to 1994. Hospital, clinic, and departmental office records were reviewed. All patients had major craniofacial bony anomalies and underwent administration of general anesthesia at least once. RESULTS: Nearly 20% of all children required tracheotomy (47/251). Craniofacial synostosis patients (Crouzon, Pfeiffer, or Apert syndrome) had the highest rate of tracheotomy (48% [28/59]). Mandibulofacial dysostoses patients (Treacher Collins or Nager syndrome) had the next highest rate (41% [28/59]). Patients with oculo-auriculo-vertebral sequence were less likely to undergo tracheotomy (22% [9/41]). Children with craniosynostosis rarely required a surgical airway, unless there was marked associated facial dysmorphism (1% [1/72]). The duration of cannulation was related to the age at tracheotomy in a bimodal distribution. Generally, tracheotomies required before age 4 years remained for several years, whereas those placed after age 4 were removed after several weeks. The presence of a cleft palate correlated with reduced risk for tracheotomy, but the presence of a ventriculoperitoneal shunt correlated with an increased risk for tracheotomy. Procedures selectively used to improve the airway included midface advancement, mandibular expansion, tonsillectomy and adenoidectomy, uvulopalatopharyngoplasty, anterior tongue reduction, and endoscopic tracheal granuloma excision. CONCLUSIONS: The likelihood for surgical airway management is related to specific craniofacial diagnosis. The length of tracheal cannulation is greatest for infants and young children who manifest severe airway compromise, often because of nasal obstruction in combination with other anatomic factors. Early tracheotomy is advocated for these patients to promote optimal growth and development. Choanal atresia is often misdiagnosed in these infants; nasal obstruction is actually secondary to midface retrusion. Staged surgical interventions can allow eventual successful decannulation in nearly all cases of craniofacial syndromes.

PMID: 9851495 [PubMed - indexed for MEDLINE]