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Pre-operative airway assessment in pediatric patients

Nosheela

Aga Khan University, Pakistan

Introduction: Several clinical criteria are being routinely used in adults, in order to identify patients with a difficult airway. This is essential in planning anesthetic management and endotracheal intubation. Several anatomical airway differences exist between adults and children. There is very scant literature available which relates to pre-operative airway assessment in pediatrics and its relationship to difficult intubation^{1,2}.

Objective:

- To assess the following variables i.e., age, gender, body mass index (BMI) and body weight, Mallampati classification and thyromental distance in two groups of pediatric patients (pre-school; less than 5 years and school going; more than 5 years) pre-operatively and correlate these to the different grades of Cormack and Lehane classification observed at the time of laryngoscopy.
- Evaluate the relationship between distance from nares to tragus with the different grades of Cormack and Lehane classification.

Material and method: This quasi experimental study was performed at Aga Khan University Hospital Karachi, after approval from the ethical committee. One hundred and ninety six pediatric patients, age range between infant to eight years and ASA I and ASA II grade undergoing elective surgery under general anaesthesia with planned endotracheal intubation were included. Demographic and clinical measurements like age, sex, weight (kg), Body Mass Index (BMI), distance between tragus to nares (cm), Mallampati grades and thyromental distance (cm) were noted. Relationship of these variables with Cormack and Lehane grading at the time of laryngoscopy was recorded. All tracheal intubations were done by one author.

Results: Cormack and Lehane grades 2 and 3 was observed in 22% of children < 5 years as compared to 02% of children . 5 years ($p < 0.001$).

In children <5 years increasing grade (2&3) of Cormack and Lehane classification was seen with decreasing tragus to nares distance ($p < 0.002$) but this trend was not observed in older children. A similar trend was observed with thyromental distance in children <5 years ($p 0.025$) and >5 years ($p 0.02$). There was no significant relationship seen for Cormack and Lehane classification with respect to gender and body mass index (BMI) and distance between tragus to nares for children 5 years and above.

Conclusion: We concluded thyromental distance (Tm), distance between tragus to nares (Tn) can be helpful for assessment of difficult airway in pediatric patients younger than 5 years of age. Further studies required on larger sample size.