An Observational Study To Determine The Utility Of Ultrasound In Prediction Of Endotracheal Tube Size In Paediatric Population

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**Objectives**: To assess the utility of USG for selection of uncuffed ETT in paediatric population
- To compare USG guided method to age based formula for calculation of ETT in paediatric population

**INTRODUCTION**: "Children are not small adults"
- Children have the distinct anatomy & physiology of their own with funnel shaped larynx which is narrowest at cricoid.
- Penlington, Cole’s Khine’s Motoyama’s age based formula are available - Contrasting evidences - for and against their use in children
- Still better method for calculation of size of ETT is being explored

**METHODOLOGY**:
- IRB approved, Prospective observational cohort.
- Settings: Paediatric surgery OR, CMC Vellore
- Study period: June 14- Mar 15

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- To assess the utility of USG for selection of uncuffed ETT in paediatric population
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**CONCLUSION**:
- Based on our data analysis - USG is certainly a better tool to predict the correct size of ETT in children as compared to age based formulas especially in children < 1 year of age and five kg of body weight

**RESULTS**
- 66 children recruited Mean age – 27.9 months (range 1wk-6yrs)
  - 21 children ≤ 1 yr of age
  - 45 children - 1 - 6 years
  - 47 (71%) boys & 19 (29%) girls
  - Mean weight- 11.5 kg (range 3.8-23.9)
  - Mean height - 85.6 cm (SD 17.1, range 48 -112)
  - 53 (80%) - ASA I
  - 13 (20%) - ASA II
  - 67 % for USG
  - 32 % for formula

**Subgroup analysis**

**Algorithm**
- GE portable Venue 40 USG machine
- Children ≤ 6 years of age, elective surgery
- for ≥ 2 years of age Int diameter of ETT in mm = 4+Age in years/4

**Sample size calculation – 63 children**

**Standardization of study protocol & USG assessment**
- A pilot analysis for 15 children (not included in this study) under supervision of radiologist
- All measurements - carried out by the experienced professor of the anesthesiology
- Uncuffed portex tube was used for all cases

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