

EVALUATION OF CUMULATIVE FASTING TIMES OF PATIENTS REQUIRING ELECTIVE TRACHEOSTOMY PLACEMENT TO FACILITATE WEANING FROM THE VENTILATOR DURING THEIR CRITICAL CARE STAY.

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Background



Enteral nutrition is the preferred route of feeding for mechanically ventilated patients to reduce the risk of underfeeding and subsequent malnutrition. Research suggests that patients in critical care are subject to frequent feed interruptions when fasting for airway procedures. Patients requiring tracheostomies to facilitate weaning from the ventilator are at particular risk as malnutrition can exacerbate respiratory muscle fatigue, further delaying ventilation weaning and prolonging ICU and hospital admission.

Objectives

1. Assess fasting times for tracheostomy insertion in critical care and compare to American Society of Anesthesiology guidelines (6 hours).
2. Investigate the most common reason for feed interruptions.
3. Evaluate cumulative fasting times and nutrient provision for ten days pre-tracheostomy insertion and compare percentage energy and protein to recommendation of 80% of requirements as per ESPEN Critical Care Guidelines.
4. Determine if there is an association between fasting times and cumulative energy and protein balance.



Methods



Patients in the ICU requiring an elective tracheostomy to facilitate weaning from the ventilator between 2019-2022 were retrospectively screened for inclusion.

Exclusion criteria

1. Received PN
2. Had tracheostomy on ICU admission
3. Had tracheostomy placed in theatre
4. <18 years old.

Demographic, clinical, and nutritional data was collected from an online clinical information system (Metavision). Data and statistical analysis were performed using SPSS.

Results

PATIENT DEMOGRAPHICS



Tracheostomy placed ICU 2019-2022 (n= 192).

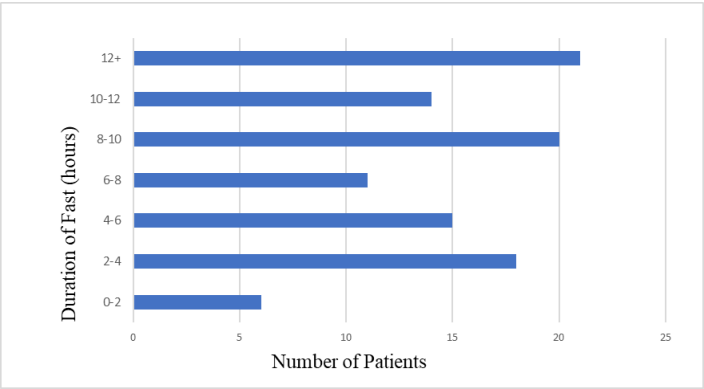


1. Received PN (n= 49)
2. Tracheostomy on admission/ theatre (n=37)
4. <18 years old (n=1)

Final patient cohort (n= 105)

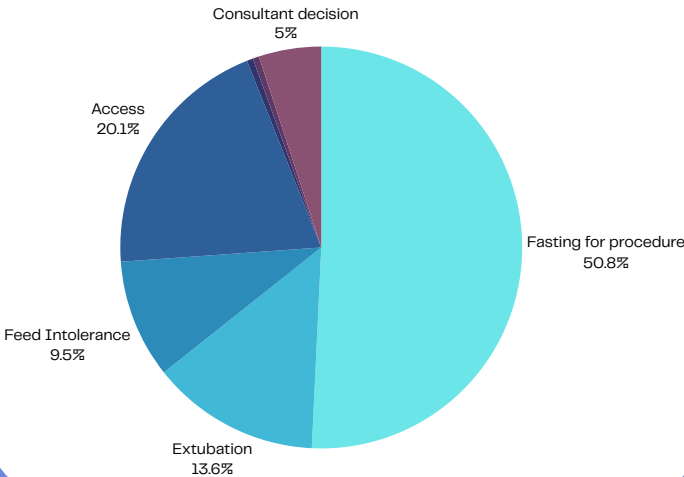
- Mean age 63.57 (SD 12.08), 58% Male.
- Median weight =78.5kg (IQR 66.15-96.55).
- Median BMI 26.95 kg/m2.
- Median APACHE II score =21 (IQR 16-26.5).
- 85% respiratory failure.
- 86% Medical, 14% surgical.
- PMhx: CVD 58%, DM 25%, Cancer 21%, CKD 10%.

FASTING TIMES FOR TRACHEOSTOMY INSERTION



- Median fasting time for tracheostomy insertion = 8.5 hours (4.5-11.5) exceeding American Society of Anesthesiology guidelines by 2.5 hours(P<0.001).
- Cumulative fasting time for 10 days pre-insertion = 21.5 hours (IQR 13.75-35).

REASONS FOR FEED INTERRUPTIONS



- On the day of tracheostomy insertion median percentage energy intake (67.87 ± 2119) and protein intake (63.22 ± 21) were lower than the standard of 80% ($P < 0.001$), representing inadequate nutrition provision.
- Percentage energy and protein intake on the days pre-insertion were above 80% ($P < 0.001$).
- An association was found between cumulative fasting times and cumulative energy and protein balance, the longer patients were fasted, the more likely they were to be in negative balance ($P < 0.001$).

Conclusion

Fasting times exceed recommendations which resulted in suboptimal nutrition provision on the day of tracheostomy insertion. This study contributes to previous research that found fasting for procedures was the most common reason for feed interruptions and therefore suggest the implementation of a fasting guideline, improved planning for tracheostomy insertion and regular education sessions for critical care staff to improve fasting practices and overall nutrition provision. Future research should evaluate the effectiveness of such interventions.