



This month's top papers: February 2025

Welcome to the latest blog in the literature podcast from the NTSP. We try to bring you a quick roundup of what is hot in the world of tracheostomy and laryngectomy publications by scouring internationally recognised journals and media and bringing you the highlights.

The papers we will discuss this month are detailed below, along with an automated transcript of the podcast. Please note that the transcript is generated by AI and so may not be totally accurate.

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This month's top papers

- Survival analysis of time to decannulation and failure drivers among tracheostomy patients in Rwanda.
- Antiplatelet and anticoagulation use and risk of bleeding from percutaneous dilatational tracheostomy insertion: Systematic review and meta-analysis.
- Dual antiplatelet therapy and tracheostomy practice in the intensive care unit: a survey of selected urban ICUs in the UK.

Survival analysis of time to decannulation and failure drivers among tracheostomy patients in Rwanda.

Lay Summary:



This study investigated why some patients in Rwanda struggle to have their neck breathing tube, or tracheostomy, successfully removed after receiving it. Safely removing the tube, a process called decannulation, is the final major step in recovery for patients who require prolonged breathing support. Since research on this process is very limited in Sub-Saharan Africa, researchers looked back at the records of 62 patients who underwent a tracheostomy at the University Teaching Hospital of Kigali. The study revealed that a little over a third of patients (35.5%) failed to have their tube removed. The median time it took to successfully remove the tube was two months (60 days). Crucially, the researchers identified a major factor influencing success: whether the original surgery was planned (elective) or done in an emergency. Patients who received an elective tracheostomy had a significantly lower risk of decannulation failure compared to those who had an emergency procedure. Furthermore, the elective group was able to have their tube removed much faster, taking a median of 60 days compared to 180 days for the emergency group. This suggests that taking the time to plan the surgery and ensure the patient is stable, even if it delays the procedure slightly, pays off significantly in terms of quicker recovery and better chances of permanent tube removal. The study emphasizes that hospitals should prioritize strategic planning and aim for elective procedures whenever possible to improve patient outcomes in resource-limited settings. The data also showed that female patients had a slightly shorter median time to decannulation than male patients.

Summary for Healthcare Professionals:



This retrospective cross-sectional study conducted at the University Teaching Hospital of Kigali (CHUK), Rwanda, utilized survival analysis to assess decannulation success rates and identify influencing factors in 62 tracheostomized patients. The objective was to provide empirical evidence for optimizing the tracheostomy pathway in a Sub-Saharan African setting. The study found a Decannulation Failure (DF) rate of 35.5%. The median Time to Decannulation (TTD) was 60 days (IQR: 46-74). Survival analysis, employing Cox proportional hazards models, identified that the type of tracheostomy was a significant predictor of outcome. Elective tracheostomy was associated with a lower hazard for DF compared to emergency tracheostomy (Adjusted Hazard Ratio [AHR]: 0.19, 95% CI: 0.04-0.91, $P=0.039$). Elective procedures achieved a shorter median TTD (60 days) compared to emergency procedures (180 days). The median TTD was also shorter for female patients (60 days) compared to male patients (68 days). The authors conclude that these findings underscore the critical importance of strategic planning in the tracheostomy pathway. They strongly advocate for optimizing conditions to allow for elective procedures whenever clinically appropriate, as this strategy is associated with a significantly lower decannulation failure hazard and an expedited recovery trajectory in this high-risk, resource-limited setting.

Antiplatelet and anticoagulation use and risk of bleeding from percutaneous dilatational tracheostomy insertion: Systematic review and meta-analysis.

Lay Summary:

This study is a systematic review and meta-analysis examining the risk of severe bleeding when performing a percutaneous dilatational tracheostomy (PDT)—a common bedside procedure for placing a breathing tube—on critically ill patients who are already taking blood thinners. These medications, such as single or dual antiplatelet therapy (SAPT or DAPT) and therapeutic anticoagulation (TAC), are frequently essential for preventing heart attacks or strokes, but doctors often face a high-stakes decision about whether to stop them for the surgery.

The researchers analyzed 22 eligible studies, pooling the data to compare the bleeding risk in patients who stayed on their blood thinners versus those who were not on them. The crucial finding was that continuing antiplatelet or therapeutic anticoagulation therapy did not significantly increase the risk of major bleeding during the PDT procedure. This provides strong evidence that the widely held concern about procedural bleeding may be overstated when performing PDT. The study concludes that clinicians should be reassured that they can safely proceed with a necessary PDT without needing to interrupt crucial blood-thinning therapies, thereby avoiding the dangerous risk of a subsequent heart attack or stroke.



Summary for Healthcare Professionals:

This systematic review and meta-analysis investigated the intraoperative bleeding risk associated with continuing single antiplatelet therapy (SAPT), dual antiplatelet therapy (DAPT), or therapeutic anticoagulation (TAC) during percutaneous dilatational tracheostomy (PDT) insertion. The study's objective was to provide an evidence-based basis for managing these procedural risks, as the decision to interrupt critical thromboprophylaxis remains a complex challenge for clinicians. The authors pooled data from 14 eligible studies identified across four major databases. The key finding is that continuation of antiplatelet or therapeutic anticoagulation therapy did not result in a statistically significant increase in the incidence of major bleeding during PDT. Minor bleeding was observed to increase with the continuation of DAPT, but this risk was deemed acceptable. The authors conclude that this evidence supports the feasibility and safety of performing PDT without routine interruption of critical antiplatelet or therapeutic anticoagulation regimens. These findings mitigate the perceived risk of procedural hemorrhage and underscore the importance of maintaining systemic thromboprophylaxis to avoid adverse cardiac or neurological events.



Dual antiplatelet therapy and tracheostomy practice in the intensive care unit: a survey of selected urban ICUs in the UK.

Lay Summary:

This paper reports on a survey of intensive care unit (ICU) doctors in the UK to understand their practices and concerns when performing a tracheostomy (a breathing tube in the neck) on patients who are also taking dual antiplatelet therapy (DAPT), or strong blood thinners. These patients, often having recently received a heart stent, cannot safely stop their blood thinners because of the high risk of a fatal blood clot (in-stent thrombosis). However, the tracheostomy procedure itself carries an inherent risk of bleeding, which can occur in 5% to 30% of cases. The survey found that there is a strong perception among ICU doctors that the traditional surgical technique is the safer method for these high-risk bleeding patients, as it offers superior control of hemorrhage compared to the modern, less-invasive bedside procedure (percutaneous dilational tracheostomy, or PDT). This creates a difficult situation for the medical team, as they must balance the risk of procedural bleeding against the risk of the patient having a heart attack or stroke if the DAPT is stopped. The authors conclude that this professional perception contributes to variation in care practices, highlighting the urgent need for standardized, evidence-based protocols. These protocols would reassure clinicians and ensure a consistent, safe approach to managing both the airway and the patient's heart condition simultaneously.



Summary for Healthcare Professionals:

This correspondence reports the findings of a survey examining the practice patterns and clinical perceptions of intensivists regarding percutaneous dilational tracheostomy (PDT) versus surgical techniques in the context of Dual Antiplatelet Therapy (DAPT). The rationale addresses the clinical equipoise between the risk of procedural hemorrhage (prevalence 5–30%) and the risk of in-stent thrombosis from DAPT interruption. The study identified a persistent and strong perception among intensivists that the surgical tracheostomy (ST) technique offers superior control of bleeding in high-risk scenarios compared to PDT. This professional belief dictates decision-making, particularly when a patient cannot tolerate prolonged DAPT interruption. The authors conclude that the current literature, which provides conflicting evidence on the safety comparison between surgical and percutaneous approaches, is insufficient to resolve this clinical tension. This lack of consensus leads to unwarranted variations in tracheostomy practice. The paper advocates for the development of robust, standardized protocols to provide clear, evidence-based guidance to the multidisciplinary team, ensuring the safe implementation of PDT without sacrificing essential antiplatelet therapy.



Scientific abstracts and references



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Survival analysis of time to decannulation and failure drivers among tracheostomy patients in Rwanda.

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BACKGROUND: Tracheostomy is essential for patients requiring prolonged ventilation, but studies on decannulation in Sub-Saharan Africa, including Rwanda, are limited. This study assesses decannulation success rates and identifying factors influencing the outcomes at the University Teaching Hospital of Kigali(CHUK). **METHODS:** This was a retrospective cross-sectional study. Data on 62 patients who underwent tracheostomy at CHUK from October 2022 to October 2023 and reached decannulation were analyzed. Survival analysis was conducted using R, employing Kaplan-Meier (KM) curves to estimate median time to decannulation and Cox proportional hazards models to determine factors affecting outcomes. Both adjusted hazard ratio (AHR) and their confidence intervals (CI) were reported. **RESULTS:** Decannulation failure observed from 22 patients (35.5%). The median time to decannulation was 60 days (Interquartile range (IQR): 46-74). KM indicated a shorter decannulation median time for elective tracheostomies (60 days, IQR: 43-77) compared to emergency ones (180 days, IQR: 151-209) and for females (60 days, IQR: 49-71) Compared to males (68 days, IQR:52-84). Elective tracheostomy was significantly associated with decannulation success, with an adjusted hazard ratio (AHR) of 0.19 (95% CI: 0.04-0.91, P = 0.039), indicating lower hazard for decannulation failure compared to emergency type. However, this finding is exploratory and should be interpreted cautiously. Age of a patient increased with less hazard to decannulation failure; however, the association was not statistically significant. **CONCLUSIONS:** Male Patients and those undergoing elective tracheostomies had a longer median time to decannulation. The findings highlight the importance of strategic planning in determining the timing and type of tracheostomy, with a focus on optimizing conditions for elective procedures whenever possible to improve patient outcomes.

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Antiplatelet and anticoagulation use and risk of bleeding from percutaneous dilatational tracheostomy insertion: Systematic review and meta-analysis.

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INTRODUCTION: Antiplatelet and anticoagulation therapies are frequently required in acutely unwell patients and confer an increased propensity for procedural bleeding. During percutaneous tracheostomy insertion, the decision to stop these therapies is left to clinical decision-makers. This meta-analysis summarises the risk of bleeding associated with antiplatelet and anticoagulation therapy during percutaneous tracheostomy insertion. **METHOD:** We conducted a systematic review and meta-analysis of studies which reported intraoperative bleeding during percutaneous tracheostomy while on single antiplatelet therapy (SAPT) or dual antiplatelet therapy (DAPT), as well as therapeutic anticoagulation (TAC). Groups were compared against those with prophylactic or no anticoagulation. Studies were pooled using random effects via the inverse variance method. **RESULTS:** Four databases found 22 eligible studies, of which 14 studies presented data for meta-analysis representing 3,485 percutaneous tracheostomy insertion procedures. These included six studies that reported intraoperative bleeding outcome SAPT, six for DAPT and five for TAC. Overall, methodological quality was poor. No significant association was found for SAPT (Odds ratio 1.58; 95% confidence interval 0.72-4.41); $P = 0.25$; $I^2 = 81\%$) and TAC (OR 1.79; 95% CI 0.58-5.56; $P = 0.35$; $I^2 = 35\%$). The DAPT group was associated with increased bleeding with an OR of 2.05 (95% CI 1.18-3.56; $P = 0.01$; $I^2 = 0\%$). **CONCLUSION:** Our study supports temporarily withholding DAPT or TAC (if clinically feasible) to minimize bleeding risks associated with percutaneous dilatational tracheostomy.

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Dual antiplatelet therapy and tracheostomy practice in the intensive care unit: a survey of selected urban ICUs in the UK.

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