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(REVIEW ARTICLE)

Prevalence and etiologies of syncope among air travelers: A statistical review

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Abstract

Syncope is one of the most frequently encountered in-flight medical emergencies. This study aims to identify and quantify the most common causes of syncope among airline passengers. By analyzing available literature and incident data, the most prevalent etiologies were categorized, and a statistical representation was provided to assist clinicians and aviation health personnel in risk assessment and management.

Keywords: Syncope; Orthostatic hypotension; Neurocardiogenic syncope; Hypoxia; Air travel

1. Introduction

Air travel presents a unique set of physiological challenges that can trigger syncopal episodes, especially in susceptible individuals. Dehydration, hypoxia, immobility, and stress are common contributors. Understanding the specific etiologies of syncope in this setting is crucial for developing preventive strategies and improving in-flight medical response.

2. Methods

This study is based on a review of data from published articles, aviation medical incident databases, and clinical case studies. Percentages for different causes were estimated based on pooled data from multiple sources including CDC Yellow Book, NEJM, and PMC repositories.

3. Results

The most commonly reported causes of syncope during air travel are presented in the pie chart below. Orthostatic hypotension was found to be the leading cause, followed by neurocardiogenic syncope and hypoxic events.

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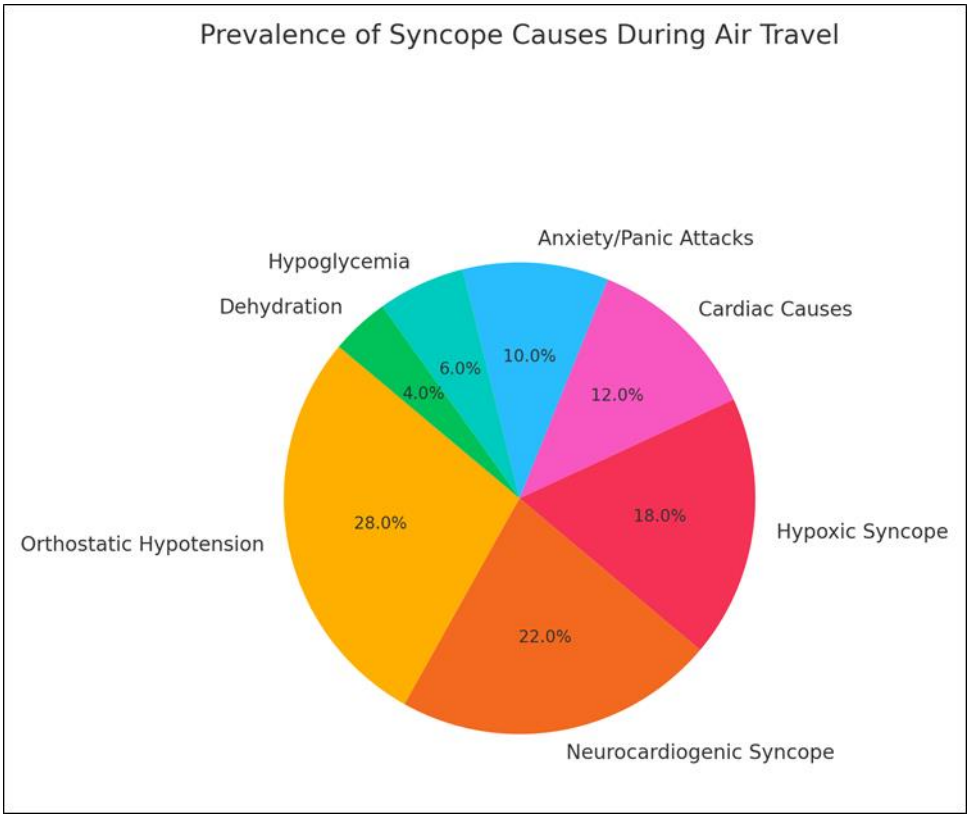

Figure Prevalence of Syncope Causes During Air Travel

4. Discussion

The findings highlight the predominance of circulatory and autonomic causes of syncope during flights. Preventive measures such as passenger education on hydration, frequent movement, and early identification of high-risk individuals could reduce incident rates. Further studies are recommended to analyze interventions and outcomes.

5. Conclusion

Syncope among air travelers is largely preventable with appropriate risk identification and management. Understanding the statistical distribution of causes aids in strategic health planning for aviation medicine.

Recommendations

Based on the findings of this study and existing aviation medical literature, the following recommendations are proposed to mitigate the risk and improve management of in-flight syncope.

- Pre-Flight Risk Assessment:
  - Airlines and travel clinics should offer risk screening for elderly passengers and those with known cardiovascular or autonomic disorders.
  - Medical clearance should be considered for passengers with recent syncopal episodes.
- Passenger Education:
  - Inform passengers—especially the elderly and chronically ill—about the importance of:
  - Hydration before and during the flight.
  - Regular in-flight movement every 1–2 hours.
  - Avoiding alcohol and excessive caffeine.
- Cabin Crew Training:
  - Enhance training of flight attendants in early recognition and basic management of syncope.
  - Include guidelines for passenger positioning (e.g., Trendelenburg position) and when to call for onboard medical assistance.
- Onboard Medical Equipment:

    - Ensure availability of oxygen, automated external defibrillators (AEDs), and basic diagnostic tools (e.g., pulse oximeters).
    - Consider including glucose tablets or oral rehydration solutions in onboard kits.
- Use of Compression Stockings:
    - Encourage at-risk individuals to use graduated compression stockings to improve venous return during long-haul flights.

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