

Taurolidine-related adverse events in patients on home parenteral nutrition frequently indicate catheter-related problems

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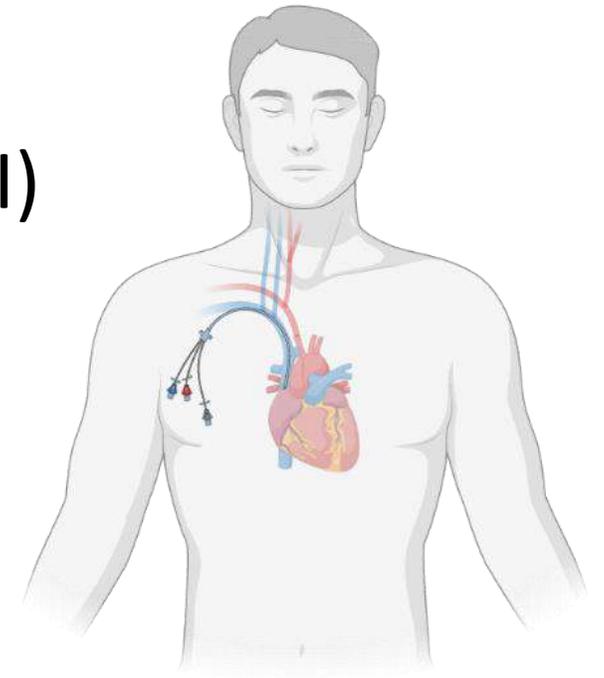


Disclosures

- None

Background

- Chronic intestinal failure (CIF)¹
- Catheter related bloodstream infection (CRBSI)
 - Prevention: catheter lock solution (CLS)



Background

Taurolidine

- Derivate of the amino acid taurine
- Biofilm formation and microbial adhesion^{2,3}
- Activity against bacterial and fungal pathogens⁴

Effective in preventing CRBSIs⁵

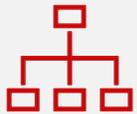
Background

- Instilled >600.000 times
- Limited information on taurolidine-related adverse events (AEs)
- Hypotheses: in a substantial number of cases, patient-reported “side effects” indicate catheter dysfunction

Aims



To evaluate taurolidine-related AEs in our home parenteral nutrition (HPN) patient cohort



To provide an algorithm on how to deal with taurolidine-related AEs in clinical practice

Methods



Study design

- Retrospective cohort study



Patient selection

- Adult HPN patients
- Taurolidine as CLS

Methods

Primary outcome

- Taurolidine-related AEs

Secondary outcomes

- Cause
- Number of rechallenges
- Algorithm

Methods

Definitions

- Taurolidine-related AE
- Rechallenge
 - Replace with 0.9% NaCl
 - Introduce after 1 week

Methods

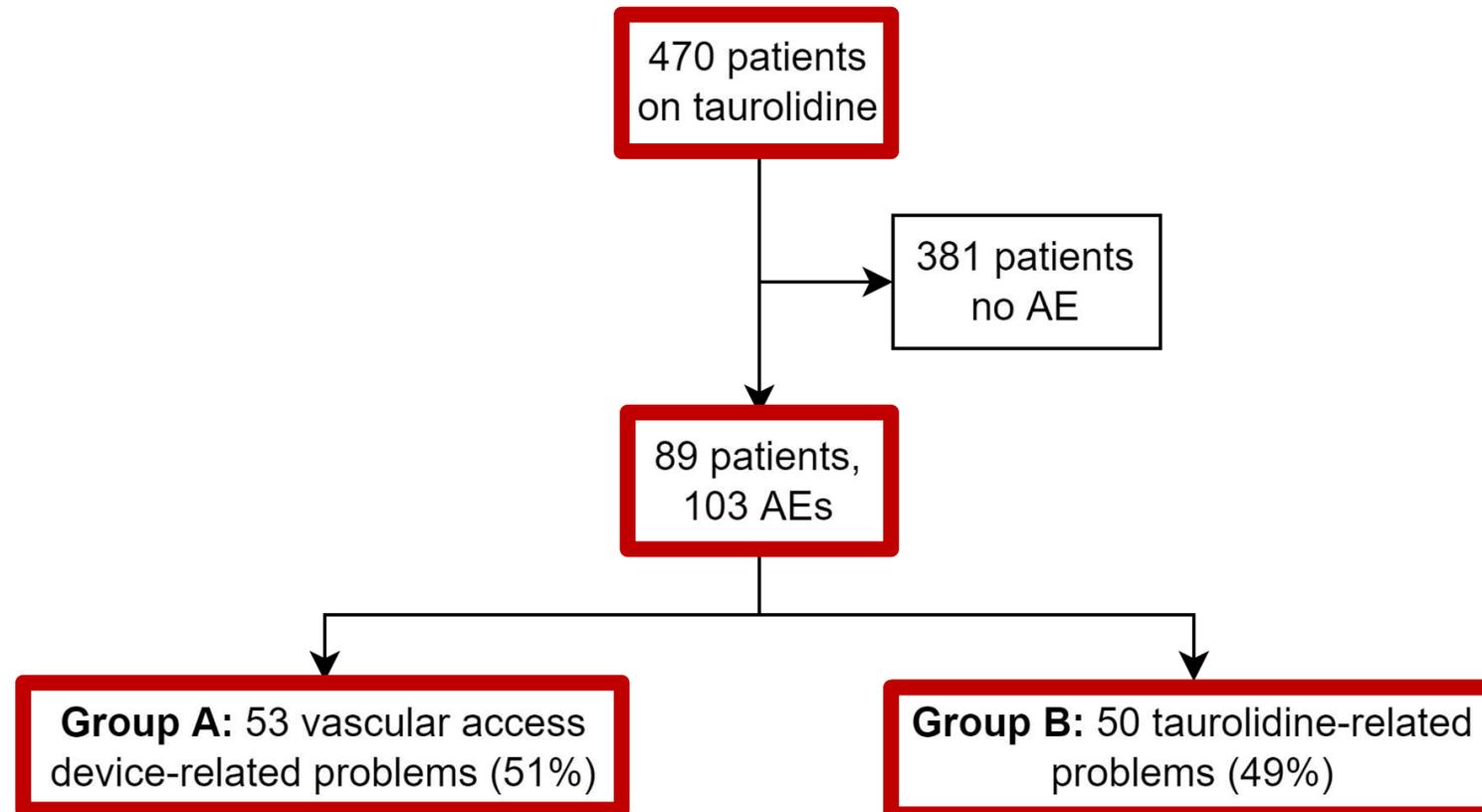
Cause

- A** Patients who experienced a taurolidine-related AE during a vascular access device-related problem

- B** Patients with most likely taurolidine-related AEs

Results

700.232 catheter days

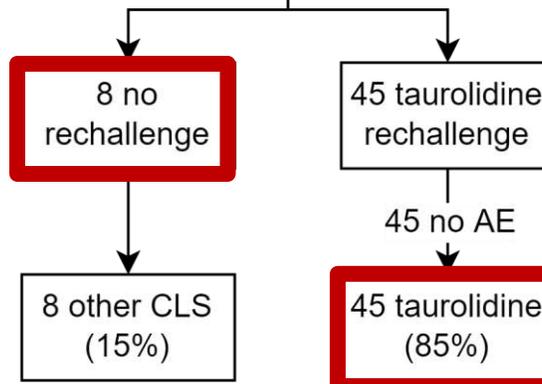
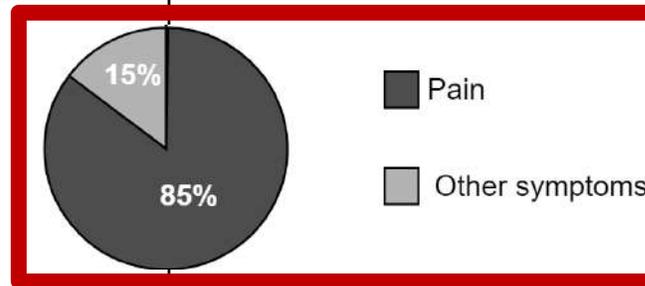


Results

Group A: 53 vascular access device-related problems (51%)

60 symptoms^a

36 Grade 1	16 Grade 2	8 Grade 3
33 Mild pain	15 Moderate pain	3 Dyspnea
1 Localized edema	1 Dizziness	3 Severe pain
1 Palpitations		1 Vasovagal reaction
1 Paresthesia		1 Dizziness

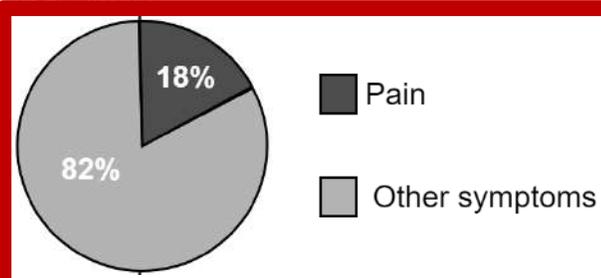


Results

Group B: 50 taurolidine-related problems (49%)

115 symptoms^a

70 Grade 1	24 Grade 2	21 Grade 3
19 Mild pain	8 Pruritus	11 Dyspnea
7 Malaise	4 Flushing	7 Rash maculo-papular
6 Dizziness	4 Rash maculo-papular	2 Flushing
6 Palpitations	3 Nausea	1 Dizziness
5 Nausea	2 Moderate pain	
5 Vomiting	2 Vascular access complication	
5 Pruritus	1 Dizziness	
4 Dysgeusia		
4 Flushing		
4 Localized edema		
2 Cough		
2 Paresthesia		
1 Diarrhea		



16 no rechallenge

34 taurolidine rechallenge

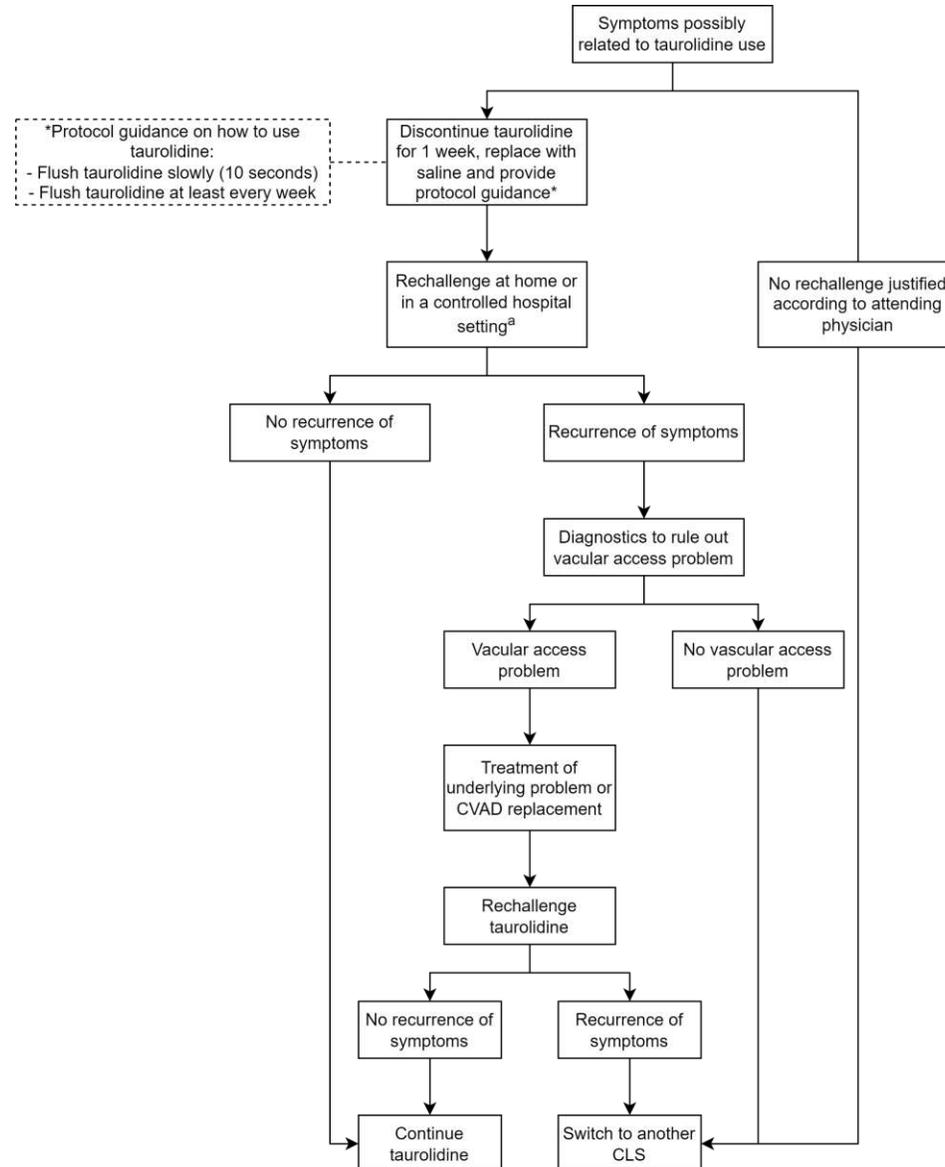
18 AE

16 no AE

34 other CLS (68%)

16 taurolidine (32%)

Results



Scan me for algorithm

Discussion

CLSs may be used in two ways

- Withdrawn
- Flush

Discussion

CLSs may be used in two ways

- Withdrawn
- Flush

1. Aspiration is not always possible
2. 3.5 mL is flushed into the systemic circulation
3. Prevent blood from entering the catheter⁷
4. Intravenous infusions up to 20 g/day⁸

Discussion

- CLS contains
 - Anticoagulants (citrate, heparin, urokinase)
 - Stabilizing agents (Polyvinylpyrrolidone, PVP)⁹
- Taurolidine -> taurine + CO₂ + H₂O

Conclusion

- Use of taurolidine generally safe
- Most reported taurolidine-related AEs were in fact catheter-related problems
- A rechallenge should be strongly considered

Questions?

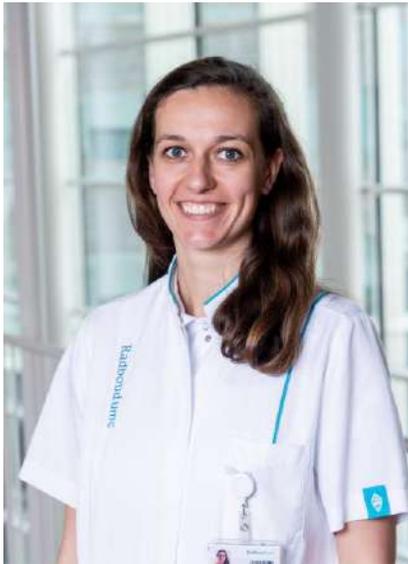
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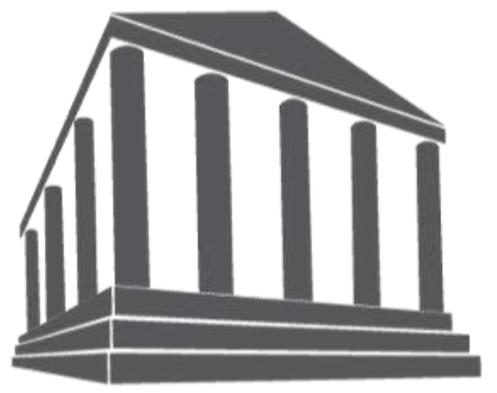
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WoC**O**VAVA

7th World Congress on Vascular Access



Back up slide

- Taurolidine-related AEs
 - Assessed according the common terminology criteria for adverse events

Grade 1 Mild; asymptomatic or mild symptoms; clinical or diagnostic observations only; intervention not indicated.

Grade 2 Moderate; minimal, local or noninvasive intervention indicated; limiting age-appropriate instrumental ADL*.

Grade 3 Severe or medically significant but not immediately life-threatening; hospitalization or prolongation of hospitalization indicated; disabling; limiting self care ADL**.

Grade 4 Life-threatening consequences; urgent intervention indicated.

Grade 5 Death related to AE.

Back up slide

- Group A
 - 85% infusion-related pain
 - Congestion and back flow of blood
 - Propofol -> TRPA1 -> pain induction and irritation

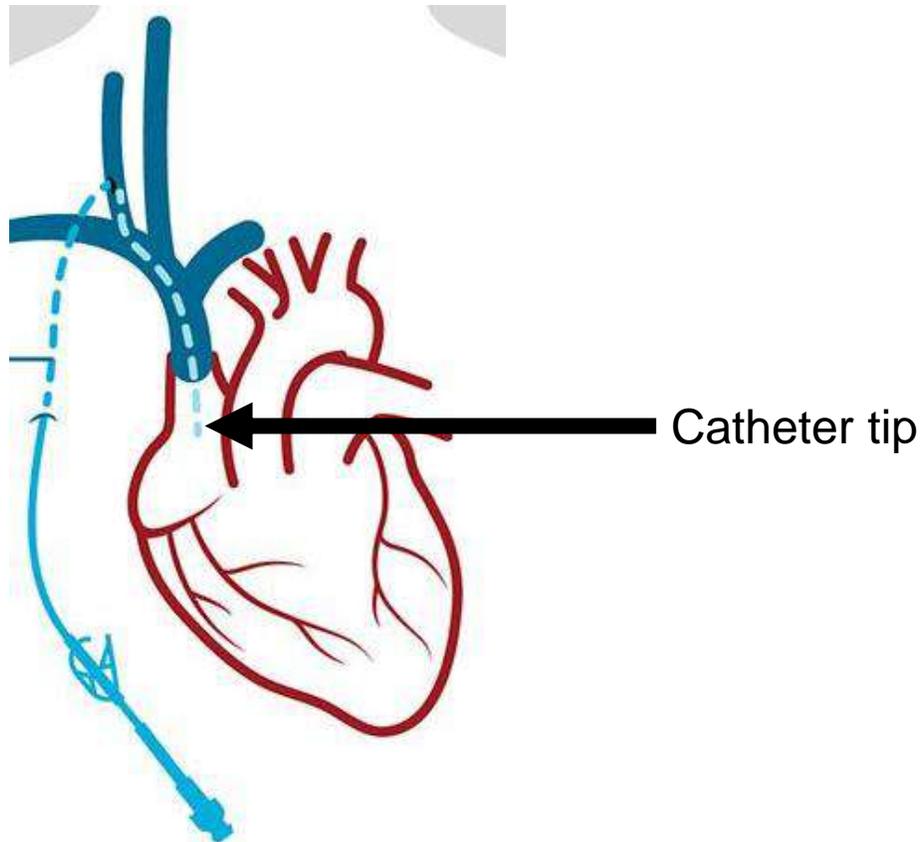
Back up slide

- Limitations
 - Retrospective nature precludes statements on causality
 - Underreporting of AEs may have played a role and retrospective assessment, especially grading, of AEs is suboptimal
- Strengths
 - We collected the most robust patient cohort from a single centre so far
 - We point out a frequent underlying cause
 - We provide an algorithm on taurolidine use for clinical practice

Back up slide

- 9 studies on adult HPN patients reported on taurolidine-related AEs
 - 5 (65 patients) found no AEs
 - 4 (450 patients) observed 45 patients (10%) with drug-related AEs, mainly pain, taste changes, dyspnea and nausea, vomiting or anorexia
 - These symptoms corroborate the findings of our study and those reported in oncology and dialysis patients

Back up slide



Back up slide

- 2006 open-label randomized trial⁶
- 2008 switch to taurolidine

Table 1

Baseline characteristics of both patients and central vascular access devices.

Patient characteristics	n = 470
Female - no. (%)	316 (67)
Age - median years (IQR)	63 (21)
Cause of intestinal failure - no. (%)	
Short bowel syndrome	191 (41)
Gastrointestinal motility disorder	167 (36)
Extensive small bowel mucosal disease	23 (5)
Intestinal fistula	29 (6)
Mechanical obstruction	18 (4)
Other	42 (9)
CVAD characteristics	n = 1.482
Type of CVAD – no. (%)	
Tunnelled catheter	1.030 (70)
Subcutaneous port system	267 (18)
Nontunneled catheter	62 (4)
Peripherally inserted central catheter	116 (8)
Other or unknown	7 (0)
Site of vein insertion – no. (%)	
Left	550 (37)
Right	877 (59)
Other	2 (0)
Unknown	53 (4)
Type of vein insertion – no. (%)	
Jugular vein	847 (57)
Subclavian vein	287 (19)
Femoral vein	141 (10)
Other	21 (1)
Unknown	186 (13)
Type of infusion - no. (%)	
Nutrition	610 (41)
Fluids	160 (11)
Nutrition and fluids	710 (48)
Other or unknown	2 (0)
Infusion – no. per week (%)	
1	2 (0)
2	32 (2)
3	73 (5)
4	83 (6)
5	84 (6)
6	78 (5)
7	1130 (76)

AE: adverse event, CVAD: central venous access device, IQR: inter-quartile range.