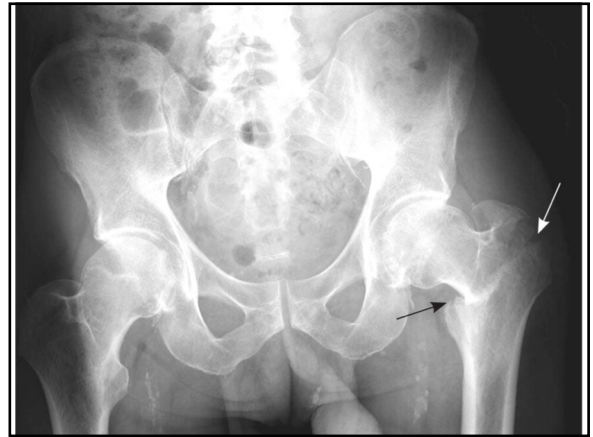



Cases and Traces

“Just a mechanical fall...”


Helen O’ Brien
Consultant Geriatrician & General Medicine
Physician (Orthogeriatrics)
OLOL Hospital, Drogheda, Co. Louth


Call from ED



“ You’re Orthogeriatrics right?...
There’s a hip fracture in ED.....
Just a *mechanical* fall.
Can you medically optimise the patient for theatre?”




The History




- 86 year old nun
- Un-witnessed trip while walking up stairs to kitchen late in evening
- Recalls trip & ground coming towards her but unable to stop fall
- Adamant no LOC
- Well prior to fall
- Denied chest pain, palpitations, SOB
- No lightheadedness/ dizziness, vertiginous symptoms, visual symptoms etc.
- No seizure markers
- No neurology described
- Unable to weight-bear, spent night on floor

Previous Falls/ Syncope?



- In the last 12 months...
no other falls *but*
- Lightheaded while seated in church earlier that day
- reports intermittent seated presyncope over last 1 month while attending mass
- ? linked to orthostatic challenge
- ? Linked to prolonged standing
- accompanied by “wave of heat”
- No chest pain/ palpitations/SOB
- Hx of Neurally mediated syncope (VVS) in youth – on prolonged standing & fasting in church

Past Medical History



- HTN
- TAVI - symptomatic Aortic Stenosis 7 years ago
- Mild CAD
- Previous Dx Osteoporosis – GP with DXA
- Hx Gastritis but recent OGD normal
- Osteoarthritis
- Medications:
Amlodipine 5mg od,
Clopidogrel 75mg od (intolerant of Aspirin),
Pantoprazole 40mg od,
Atorvastatin 20mg nocte,
Calcichew D3 Forte 500mg/400 units bd,
Alendronate 70mg once weekly,
Pregabalin 50mg bd,
Tramadol PRN
- No history of MI, Stroke/ TIA/ DM
- Hysterectomy - uterine prolapse

History continued...

- Allergies: NKDA
- Family History: Maternal Hip fracture, nil IHD, No hx long QT syndrome/ Brugada/ Unexplained RTAs/ drowning (age)
- Social Hx: Very independent lady –
 - I. all PADLs, Independently mobile with W/S, continent x 2, bathroom/ bedroom upstairs, excellent social supports, Convent manages finances,
 - Non smoker/ drinker, worked in missions in Africa for 42 years as teacher
 - Volunteered
- ROS – non-contributory



Examination

- No distress, sitting up in bed talking
- BP 110/70, HR 80-90, RR 16, SpO2 96%, apyrexial
- Warm, well perfused
- CVS: HS I-II normal, regular, No AS, ESM over aortic area w/ radiation to carotids, No raised JVP, no peripheral oedema
- Resp: Chest clear
- GIT: NAD
- Neuro: CN intact, PNS normal 3 limbs
- MSK: Left leg shortened, externally rotated, neurovasc intact
- No evidence of Head Injury



Examination

- 4AT – 0
- Abbreviated Mental Test Score – 8
- Clinical Frailty Scale – 4
- New Mobility Score - 5

4AT

Abbreviated mental test score (correct answer = 1 point, max. score 10)

1. Age

2. Time (nearest hour)

3. Address (repeat row and at end of test)

4. Year

5. Name of this place

6. Identify 2 persons eg doctor, nurse

7. Count

8. Date of first world war

9. Name of present monarch

10. Count backwards 20 to 1

Clinical Frailty Scale*

1. Very fit - People who are robust, active, energetic and motivated. These people commonly exercise regularly. They are among the fittest for their age.

2. Well - People who have no acute disease symptoms but are much less energetic. Often they exercise or are very active occasionally, e.g. occasionally several times a week.

3. Managing Well - People whose medical problems are well controlled but are not regularly active beyond routine walking.

4. Vulnerable - People who are not independent in others for daily help, often experience limited activities. A common condition is being 'lived up' and/or being frail during the day.

5. Moderately frail - These people often have more evident slowing, and need help in high order skills (driving, shopping, house repairs, medical appointments, etc.). They usually have difficulty with shopping and walking, and often have some degree of incontinence and/or dementia.

6. Moderately frail - People need help with all active activities and with keeping house. Incontinence, they often have problems with sleep and need help with walking and night toilet assistance (often).

7. Severely frail - Completely dependent for personal care, from someone (not professional help). Even so, they remain stable and not at high risk of falling (often). 4 months.

8. Very severely frail - Completely dependent, approaching the end of life. Typically, they could no longer appear from a minor illness.

9. Mortality (M) - Approaching the end of life. This category applies to people with a life expectancy of 6 months, who are not otherwise severely frail.

10. Mortality (M) - Approaching the end of life. This category applies to people with a life expectancy of 6 months, who are not otherwise severely frail.

11. Mortality (M) - Approaching the end of life. This category applies to people with a life expectancy of 6 months, who are not otherwise severely frail.

12. Mortality (M) - Approaching the end of life. This category applies to people with a life expectancy of 6 months, who are not otherwise severely frail.

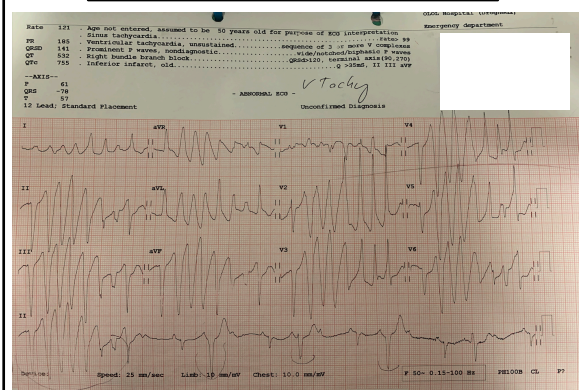
Table 1. New Mobility Score (NMS) (Parker and Parker, 1993)

Mobility	No difficulty	With aid	With help from another person	Not at all
able to get about the house	3	2	1	0
able to get out of the house	3	2	1	0
able to go shopping	3	2	1	0

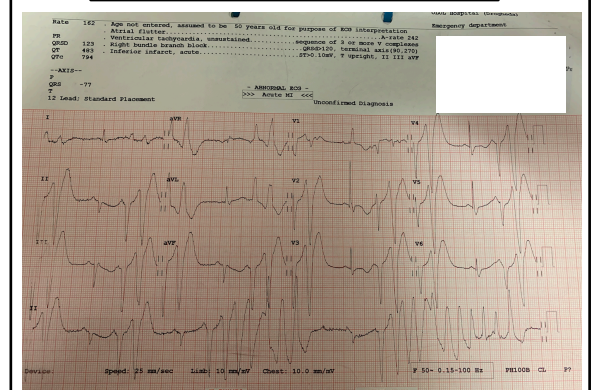
Basic Bloods

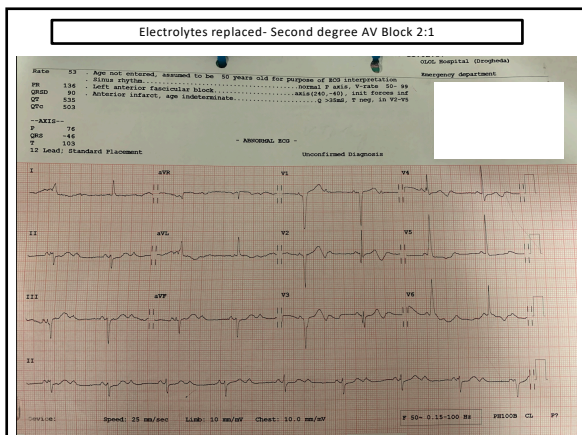
- FBC –
 - WCC 17.6
 - Hb 12.6
 - MCV86
 - Plts 303
 - Neuts 16.3
- U/E –
 - Na 138
 - K 3.6
 - Urea 5.7
 - Creat 56
- CRP 25.3
- LFTs normal
- Bone profile – Corr Ca 2.33
- Mg 0.64mmol/L (0.66-1.07)
- Phos 0.78 (0.74-1.52)
- Trop 19pg/ml (<15.6), no serial rise
- INR 1.0, PT 13.3
- CXR – No infiltrates, no effusions, mild cardiomegaly, TAVI visible

Initial ECG in ED



A little more Non-sustained Polymorphic VT in ED



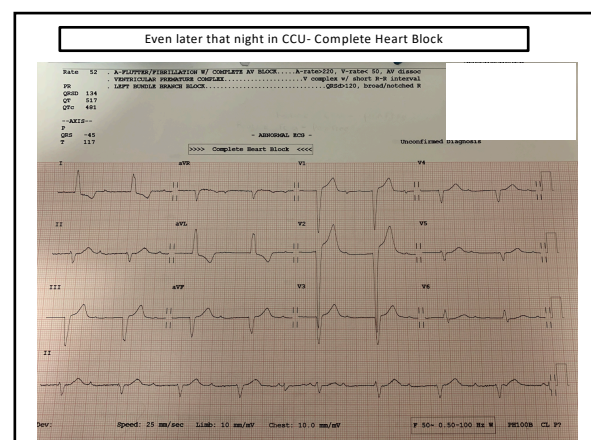
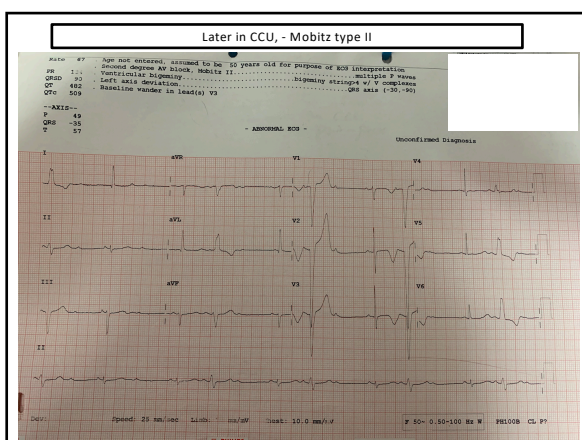
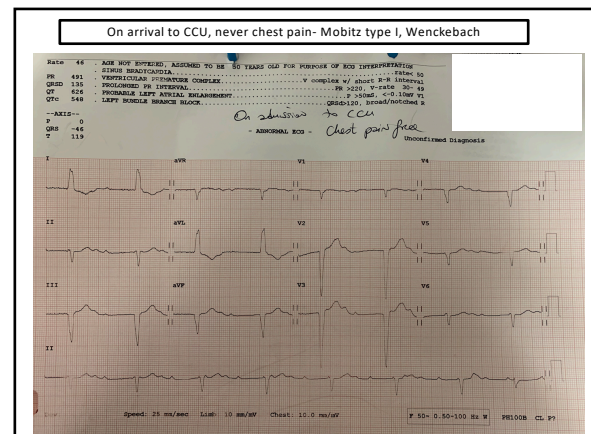
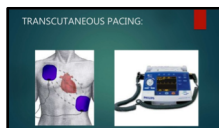


Impression/ Issues:

- 1) Un-witnessed accidental fall from history
BUT
Torsade de Pointes on ECG (Stable non-sustained polymorphic VT)
followed by 2:1 AV Block
& seated presyncope in history
- **NOT** "just a mechanical fall"
- 2) Overtreated HTN – evident in ED & throughout admission
- 3) Fragility fracture – NOF#
- therefore confirms **diagnosis of Osteoporosis** (Postmenopausal, maternal hip #)
- Poor tolerance of Ca/ Vit D & Bisphosphonate
- 4) Background hx of Neurally-mediated syncope- **symptoms different**


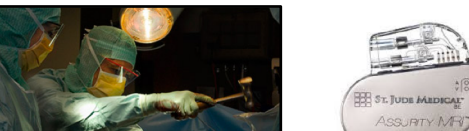
Management plan

- Replace electrolytes – Mg, K, Phos
- IV fluids
- Hold any contributing meds – Tramadol, Pregabalin, Pantoprazole
- Hold Amlodipine pre-operatively
- Hold Clopidogrel in anticipation of Spinal Anaesthetic
- Cardiology advice – initially Amiodarone but worsened polymorphic NSVT
- ? Timing of PPM – risk of infection with major orthopaedic surgery
- Very high risk surgery
- DNACPR/ ACP discussion pre-op (Anaesthetics)
- Collaborative approach- Cardiology, Anaesthetics, Orthopaedics & Orthogeriatrics
- Transcutaneous pads in situ for surgery
- ECHO arranged urgently
- CCU transfer for monitoring
- Note WCC/ Neuts raised but unclear source – septic screen



Timing of Surgery & PPM

- Informed pre-op discussion re risks
- Optimised electrolytes
- Transcutaneous pacing pads intra-op
- Left Gamma nail
- Spinal anaesthetic, avoidance of QTc prolonging meds (anaesthetic agents + Anti-emetics etc.)
- Post-op CCU stay until PPM inserted



- Informed pre-op discussion re risks
- Optimised electrolytes
- Transcutaneous pacing pads intra-op
- Left Gamma nail
- Spinal anaesthetic, avoidance of QTc prolonging meds (anaesthetic agents + Anti-emetics etc.)
- Post-op CCU stay until PPM inserted


ECS

European Heart Journal (2018) 39, 1883–1948

ESC GUIDELINES

Treatment of syncope due to cardiac arrhythmias

Recommendations	Class ^a	Level ^b
Bradycardia (intrinsic)		
Cardiac pacing is indicated when there is an established relationship between syncope and symptomatic bradycardia due to:		
<ul style="list-style-type: none"> Sick sinus syndrome,^{170–172,139–138} Intrinsic AV block.^{190,235,341} 	I	B
Cardiac pacing is indicated in patients with intermittent/paroxysmal intrinsic third- or second-degree AV block (including AF with slow ventricular conduction), although there is no documentation of a correlation between symptoms and ECGs.	I	C
Cardiac pacing should be considered when the relationship between syncope and asymptomatic sinus node dysfunction is less established. ^{18, 174,170–172,139,340}	IIa	C
Cardiac pacing is indicated in patients when there are reversible causes for bradycardia.	III	C
Bifascicular BBB		
Cardiac pacing is indicated in patients with syncope, BBB, and a positive EPS or LR-documented AV block. ^{168,127}	I	B
Cardiac pacing may be considered in patients with unexplained syncope and bifascicular BBB. ^{177,235,344}	IIb	B
Tachycardia		
Catheter ablation is indicated in patients with syncope due to SVT or VT in order to prevent syncope recurrence. ⁴⁶	I	B
An ICD is indicated in patients with syncope due to VT and an ejection fraction $\leq 35\%$. ⁴⁴	I	A
An ICD is indicated in patients with syncope and previous myocardial infarction who have VT induced during EPS. ²⁷⁸	I	C
An ICD should be considered in patients with an ejection fraction $>35\%$ with recurrent syncope due to VT when catheter ablation and pharmacological therapy have failed or could not be performed. ⁴⁶	IIa	C
Antibrhythmic drug therapy, including rate-control drugs, should be considered in patients with syncope due to SVT or VT.	IIa	C



P.T.
A Peer-Reviewed Journal
for Managed Care and
Hospital Formulary
Management

Table 1

Risk Factors for Torsades de Pointes^{1,2}

• Older than 65 years of age

• Bradycardia

P.T. 2017 Jul; 42(7): 473-477.

Drug-Induced

Matthew Li, PharmD

• Author information

This article has been

INTRODUCTION

This column strays from the usual format of adverse event that de pointes (TdP) is rare in patients who subject to a routine electrocardiogram

Tisdale Risk Score ^{1,2}			
Risk Factor	Points	QTc Interval Risk Score Stratification	
		Risk Score Category	Risk Score
Age ≥ 68 years	1	Low	< 7
Female gender	1		
Loop diuretic	1		
Serum potassium ≤ 3.5 mEq/L	2	Moderate	7-10
Admission QTc ≥ 450 ms	2		
Acute myocardial infarction	2		
≥ Two QTc-prolonging drugs	3		
Sepsis	3		

failure, heart failure with

drugs, inadequate renal dosing

CONCLUSION

The development of TdP is rare and multifactorial, with drugs or drug interactions being the most likely culprits. Preventive measures require diligent QTc monitoring, electrolyte repletion, and assessment of potential aggravating drug use and/or drug-drug interactions. Management of TdP can involve DCCV, IV magnesium sulfate, transvenous/pharmacological pacing, and electrolyte repletion.

Go to: [View](#)

22:39

➔ Drugs Prolonging The QTc Interval

🔍 Search for text

[loaded from www.medicines.org.uk/meds.htm](https://www.medicines.org.uk/meds.htm)

Drug Name (UK)	Drug Name (US)	Priority Medication (US)
Anti-infectives		
Antibiotics - Quinolones		
Antifungals		
Anti-arrhythmics		
Antidepressants		
Antipsychotics		
Anti-emetics		
Antihistamines		
Antimalarials		
Antivirals		
Anaesthetics		
Miscellaneous		


***For advice on medicines in QT prolongation, see section 4.6.4**
Information on Electrolytes (QT Prolongation & Suppression)

- ❗ A lot of drugs to avoid in **Disseminated QT syndrome** is available on [www.medicines.org.uk](#)
- ❗ A number of available **agonists** have been associated with prolonged QT syndrome, there is an **Disseminated**
- ❗ Not available on the site **providing information** on these.
- ❗ Prescribing recommendations have been implemented for some community

Not available on the site **providing information on these.**

Information on Electrolytes (QT Prolongation & Suppression)

Home
Search
Feedback
Help




MEDDOCS
Open Access Publisher

Annals of Cardiology and Vascular Medicine

Open Access | Review Article

Tramadol linked QT interval prolongation and Torsades de pointes

Post-operative course



- Dual chamber PPM inserted
- No further NS polymorphic VT once electrolytes corrected & culprit meds stopped
- Rehabilitation on ward
 - CGA guided, MDT delivered patient-centred approach.
- Bone Protection – poor tolerance of PO Bisphos.
 - Zol discussed but pt preference for Denosumab as alternative once Vit D adequately replaced
- Ensured no QTc prolonging drugs & communication to GP
- Offsite Rehab & then HOME
- Cardiology follow up
- Excellent outcome

- Dual chamber PPM inserted
- No further NS polymorphic VT once electrolytes corrected & culprit meds stopped
- Rehabilitation on ward
 - CGA guided, MDT delivered patient-centred approach.
- Bone Protection – poor tolerance of PO Bisphos.
- Zol discussed but pt preference for Denosumab as alternative once Vit D adequately replaced
- Ensured no QTc prolonging drugs & communication to GP
- Offsite Rehab & then HOME
- Cardiology follow up
- Excellent outcome

