

1 A 44-year-old male with ESRD was in his usual state of health until the day of hospitalization when he became unresponsive and pulseless during hemodialysis .

2 An automated external defibrillator was placed and he received appropriate shock as well as transient CPR .

3 He was brought to our emergency department for further management .

4 His history included hypertension , hepatitis C infection , human immunodeficiency virus infection , anemia , and secondary hyperparathyroidism .

5 On arrival , he was hemodynamically stable and euvoletic on exam .

6 Initial laboratory data revealed an uncorrected calcium of 1.65 mmol/L -LRB- normal 2.12.55 mmol/L -RRB- , ionized calcium of 0.71 mmol/L -LRB- normal 1.12 1.32 mmol/L -RRB- , potassium of 3.2 mmol/L -LRB- normal 3.5 5.1 mmol/L -RRB- , magnesium of 0.61 mmol/L -LRB- normal 0.66 0.95 mmol/L -RRB- , and phosphorus of 0.97 mmol/L -LRB- normal 0.81 1.45 mmol/L -RRB- .

Initial electrocardiogram showed a sinus rhythm with a prolonged QT interval and

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- amuse I-wave changes -LRB- Fig .
- 8 1a -RRB- , but in minutes , he developed torsades de pointes -LRB- Fig .
- 9 1b -RRB- and became unresponsive .
- 10 He was again resuscitated and transferred to the intensive care unit .
- 11 Treatment of his secondary hyperparathyroidism had been initiated
- 3 years prior when his intact parathyroid hormone -LRB-
iPTH -RRB- level was 117 pmol/L -LRB- normal 24.2 66.1 pmol/L -RRB- and
included paricalcitol with hemodialysis and
daily cinacalcet .
- 12 Three weeks prior to admission , his cinacalcet dose was
increased from 60 to 90 mg daily due to an iPTH level of 85.6 pmol/L -LRB-
calcium was 2.11 mmol / L and phosphorus was 2.26
mmol/L -RRB- .
- 13 Other home medications included sevelamer carbonate ,
nifedipine XL , and metoprolol succinate .
- 14 On admission , cinacalcet was stopped , and magnesium , potassium ,
and calcium were administered .
- 15 No other factors capable of inducing hypocalcemia were
identified

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- 16 The **Finding** diagnosis of **Finding** torsades de pointes **Qualitative Concept** associated with **Finding** prolonged QT interval in **Quantitative Concept** part **Functional Concept** due to **Pharmacologic Substance** cinacalcet-induced **Qualitative Concept** severe **Disease or Syndrome** hypocalcemia **Functional Concept** was made .
- 17 **Temporal Concept** Once **Element Ion or Isotope** his **Fully Formed Anatomical Structure** total body calcium **Pharmacologic Substance** was replaced , the **Clinical Attribute** QT interval **Research Activity** normalized **Intellectual Product** on his electrocardiogram and no **Spatial Concept** further **Finding** ar-rhythmias were **Functional Concept** observed .
- 18 **Pharmacologic Substance** Phosphate binders **Pharmacologic Substance** and **Pharmacologic Substance** vitamin D **Pharmacologic Substance** sterols are the mainstay of **Occupational Activity** management **Disease or Syndrome** for secondary hyperparathyroidism in **Patient or Disabled Group** patients **Disease or Syndrome** with ESRD .
- 19 **Pharmacologic Substance** Cinacalcet **Temporal Concept** was **Functional Concept** recently **Conceptual Entity** introduced as an **alternative** option , **Occupational Activity** working **Amino Acid Peptide or Protein** via the calcium sensing receptor **Activity** by enhancing its **Functional Concept** sensitivity to **Cell Component** extracellular **Pharmacologic Substance** calcium **Activity** and thereby **Functional Concept** inhibiting PTH release .
- 20 **Disease or Syndrome** Hypocalcemia **Functional Concept** is a **Functional Concept** common **Phenomenon or Process** adverse effect , which can potentially be **Phenomenon or Process** mitigated **Temporal Concept** by the **Functional Concept** concurrent **Functional Concept** use of **Pharmacologic Substance** **Pharmacologic Substance** **Pharmacologic Substance** **Medical Device** calcium-based phosphate binders .
- 21 **Functional Concept** Symptomatic **Disease or Syndrome** hypocalcemia **Functional Concept** induced **Pharmacologic Substance** by cinacalcet is rare , and in **Qualitative Concept** **Quantitative Concept** **Patient or Disabled Group** **Idea or Concept**

- 22 a **Laboratory Procedure** serum calcium level less than 7.5 **Quantitative Concept** mg/dL -LRB- **Quantitative Concept** 1.87 mmol/L -RRB- .
- 23 Torsades de pointes , a polymorphic **Manufactured Object** form of ventricular tachycardia , is
 seen in **Qualitative Concept** patients with **Temporal Concept** prolonged **Cell** cardiomyocyte repolarization ,
 which is **Intellectual Product** exhibited **Intellectual Product** on electrocardiogram by **Finding** long QT **Temporal Concept** intervals .
- 24 Hypocalcemia , hypokalemia , and **Finding** hypomagnesemia **Functional Concept** increase **Idea or Concept** risk of
 torsades de pointes by prolonging repolarization .
- 25 Hypocalcemia **Disease or Syndrome** further **Spatial Concept** increases **Functional Concept** risk **Idea or Concept** by potentiating
 development of **Functional Concept** early **Temporal Concept** after depolarizations. Our **Patient or Disabled Group** patients **Finding** arrhythmia
 did **Functional Concept** not **Conceptual Entity** resolve **Laboratory Procedure** until his serum calcium level normalized , and other
Inorganic Chemical electrolytes **Functional Concept** were replaced .
- 26 To our knowledge , this may be **Quantitative Concept** one **Qualitative Concept** of the first
Clinical Attribute
Health Care Activity
Functional Concept reported cases **Pharmacologic Substance** of cinacalcet-induced **Disease or Syndrome** hypocalcemia **Functional Concept** resulting in
Finding torsades de pointes and **Disease or Syndrome** cardiac arrest .
- 26 As recommended by the pharmaceutical company , **Laboratory Procedure** serum calcium and
Laboratory Procedure ionized calcium levels should be **Diagnostic Procedure** measured **Temporal Concept** within 1 week after
Functional Concept initiation **Health Care Activity** or dose adjustment **Pharmacologic Substance** of cinacalcet .
Temporal Concept Once **Quantitative Concept** a maintenance dose has been established , **Temporal Concept** monthly **Health Care Activity** monitoring

	<p> Spatial Concept oral Therapeutic or Preventive Procedure calcium supplementation Temporal Concept as needed Finding should be stressed with all </p> <p> Patient or Disabled Group patients . </p>
28	<p> Congenital Abnormality Abnormalities in Laboratory or Test Result serum potassium and magnesium -LRB- b -RRB- a Finding EKG showing </p> <p> Qualitative Concept diffuse Finding T wave abnormalities and Intellectual Product QT interval prolongation ; Medical Device b cardiac monitor </p> <p> Medical Device strips from this Patient or Disabled Group patient Animal showing Disease or Syndrome polymorphic ventricular tachycardia </p> <p> Idea or Concept consistent with Finding torsades de pointes might potentiate the Idea or Concept risk for arrhythmias , and </p> <p> Temporal Concept monthly Therapeutic or Preventive Procedure monitoring of electrolytes Geographic Area to Food ensure </p> <p> Finding normal serum levels of potassium and magnesium is also Idea or Concept recommended . </p>
29	<p> Pharmacologic Substance Cinacalcet Finding should be used cautiously in Patient or Disabled Group patients with </p> <p> Qualitative Concept known Intellectual Product risk factors for hypocalcemia , with a Functional Concept history of QT </p> <p> Temporal Concept prolongation , and with Temporal Concept concurrent Functional Concept use of other Quantitative Concept QT prolonging </p> <p> Pharmacologic Substance agents . </p>
30	<p> Professional or Occupational Group Authors Activity contribution All authors had Spatial Concept access to the Medical Device data </p> <p> Conceptual Entity and a Conceptual Entity role in Occupation or Discipline writing the Intellectual Product manuscript . </p>