

Non-Drug Factors Associated With QT Prolongation and TdP

| Autonomic Nervous System | | | | | |
|--------------------------------|--|--|-------------------------------|---|----------------------|
| Clinical Factor | Clinical Association with Increased QT | Quality of Evidence for Assoc. with Increased QT | Clinical Association with TdP | Quality of Evidence for Assoc. with TdP | Pubmed Search Link |
| Pheochromocytoma | Yes | High | Yes | High | link |
| Alpha adrenergic stimulation | Yes | Moderate | Yes | Low | link |
| Emotion (Arousal) | Yes | Moderate | Yes | Moderate | link |
| Head-up tilt | Yes | High | None | No evidence | link |
| Pure Autonomic Failure | Yes | High | None | No evidence | link |
| Cold Water Immersion | Yes | Moderate | Yes | Moderate | link |
| Parkinson's disease | Yes | Moderate | None | No evidence | link |
| Esophageal ulcer | Weak | Low | None | No evidence | link |
| Migraine headache | Yes | Moderate | None | No evidence | link |
| Encephalitis (West Nile virus) | Weak | Moderate | None | No evidence | link |
| Endotracheal intubation | Yes | Moderate | None | No evidence | link |
| Sleep Deprivation | Yes | High | None | No evidence | link |

Cardiovascular Diseases

| Clinical Factor | Clinical Association with Increased QT | Quality of Evidence for Assoc. with Increased QT | Clinical Association with TdP | Quality of Evidence for Assoc. with TdP | Pubmed Search Link |
|--|--|--|-------------------------------|---|----------------------|
| Bradycardia, AV Block, Pause | Yes | High | Yes | High | link |
| Takosubo (stress-related) Cardiomyopathy | Yes | High | Yes | High | link |
| Acute Myocardial Ischemia | Yes | Moderate | Yes | Low | link |
| Stroke | Yes | High | Yes | Low | link |
| Hypertension/LVH | Yes | Low | Weak | Very Low | link |
| Mitral Valve Prolapse | Yes | Moderate | Weak | Very Low | link |
| Cardiomyopathy/CHF | Yes | Moderate | Weak | Low | link |
| Atrial Fibrillation Conversion | Weak | Moderate | Yes | Moderate | link |
| Mitral valve stenosis | Yes | Moderate | None | No evidence | link |
| Hypertrophic Cardiomyopathy | Weak | Low | Weak | Low | link |
| Metabolic Syndrome | Yes | Moderate | None | No evidence | link |
| Aortic Stenosis | Yes | High | Yes | Moderate | link |

| Electrolyte Disorders | | | | | |
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| Clinical Factor | Clinical Association with Increased QT | Quality of Evidence for Assoc. with Increased QT | Clinical Association with TdP | Quality of Evidence for Assoc. with TdP | Pubmed Search Link |
| Hypokalemia (3.5 mEq/L) | Yes | High | Yes | High | link |

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| Hypomagnesemia (1.7 mg/dL) | Yes | High | Yes | High | link |
| Hypocalcemia (8.5 mg/dL) | Yes | High | Yes | High | link |
| Diarrhea | Yes | Moderate | Weak | Very Low | link |
| Licorice (Excessive ingestion) | Yes | High | Yes | Moderate | link |
| Bartter Syndrome | Yes | Moderate | Weak | Very Low | link |
| Hemodialysis | Yes | Moderate | Weak | Moderate | link |
| Hypernatremia (extreme) | Yes | Low | Yes | Very Low | link |
| Apheresis/blood transfusion | Yes | High | Yes | Moderate | link |
| Gitelman Syndrome | Yes | High | None | No evidence | link |
| Hypoalbuminemia | Weak | Very Low | None | No evidence | link |

| Endocrine Disorders | | | | | |
|--------------------------------|--|--|-------------------------------|---|----------------------|
| Clinical Factor | Clinical Association with Increased QT | Quality of Evidence for Assoc. with Increased QT | Clinical Association with TdP | Quality of Evidence for Assoc. with TdP | Pubmed Search Link |
| Hypothyroidism | Yes | High | Yes | High | link |
| Hyperglycemia | Yes | Low | Weak | Very Low | link |
| Diabetes | Yes | Very Low | Weak | Very Low | link |
| Obesity (BMI >30, adiponectin) | Yes | Moderate | None | No evidence | link |
| Leptin | Yes | Low | None | No evidence | link |

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| Decreased PI3 kinase (inc. INaL) | Yes | Low | None | No evidence | link |
| Primary Aldosteronism | Yes | Moderate | Yes | Moderate | link |
| Hypoglycemia | Yes | Low | Yes | Moderate | link |
| Hyperthyroidism | Yes | Low | Weak | Very Low | link |
| Panhypopituitarism | Yes | Moderate | Yes | High | link |
| Hyperparathyroidism | Yes | High | Weak | Very Low | link |
| Hypogonadism | Yes | Moderate | Yes | Moderate | link |
| Hypoparathyroidism | Yes | Moderate | Yes | Low | link |

| Environmental Effects | | | | | |
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| Clinical Factor | Clinical Association with Increased QT | Quality of Evidence for Assoc. with Increased QT | Clinical Association with TdP | Quality of Evidence for Assoc. with TdP | Pubmed Search Link |
| Hypothermia | Yes | High | Yes | Moderate | link |
| Smoking | Weak | Low | None | No evidence | link |
| Alcohol (excess) | Yes | Low | None | Very Low | link |
| Herbals/Dietary Supplements | Yes | Moderate | Yes | Moderate | link |
| Hypoxia, COPD, Sleep apnea | Yes | Moderate | None | Low | link |
| Lead exposure | Yes | Low | None | No evidence | link |
| Carbon Monoxide | Yes | High | Weak | Low | link |
| Chlorobutanol | Yes | Low | Yes | Low | link |

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|-------------------------|------|----------|------|-------------|----------------------|
| Omega 3 PUFA deficiency | Weak | Very Low | None | No evidence | link |
| Grapefruit juice | Yes | High | Yes | Low | link |
| Synthetic Cannabinoids | Yes | High | None | No evidence | link |

| General Clinical | | | | | |
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| Clinical Factor | Clinical Association with Increased QT | Quality of Evidence for Assoc. with Increased QT | Clinical Association with TdP | Quality of Evidence for Assoc. with TdP | Pubmed Search Link |
| Female Sex | Yes | High | Yes | High | link |
| Age 65 yr | Yes | High | Yes | Low | link |
| Renal failure (GFR 30 ml/min) | Yes | Low | Yes | Very Low | link |
| Liver failure (cirrhosis) | Yes | Moderate | None | No evidence | link |
| Pulmonary embolism | Yes | Moderate | None | No evidence | link |
| Thiamine deficiency | Yes | Low | None | No evidence | link |
| Vitamin D deficiency | Yes | Low | Yes | Moderate | link |

| Inflammation/Auto-immune | | | | | |
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| Sepsis | Yes | Low | Yes | Moderate | link |

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| Systemic Lupus Erythematosus | Yes | Moderate | None | No evidence | link |
| HIV | Yes | Moderate | None | No evidence | link |
| C-Reactive protein | Yes | Moderate | Yes | Moderate | link |
| Heat Shock Proteins | Yes | Low | None | No evidence | link |
| Cytokines (TNF, IL1, IL6) | Yes | Moderate | Yes | Moderate | link |
| Fever | Yes | Low | Yes | Low | link |
| Inflammation/Rheum. Arthritis | Yes | High | Yes | Moderate | link |
| Sarcoidosis | Yes | Low | Weak | Very Low | link |
| Anti-Ro/SSA Antibody | Yes | Low | Yes | Very Low | link |
| Multiple sclerosis | Yes | Low | None | No evidence | link |
| Celiac disease | Yes | High | None | No evidence | link |
| Psoriasis | Weak | Very Low | None | No evidence | link |
| Cardiac Allograft Rejection | Yes | Low | None | No evidence | link |
| Ankylosing Spondylitis | Yes | High | | No evidence | link |
| Scleroderma | Yes | Moderate | None | No evidence | link |

| Miscellaneous | | | | | |
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| Clinical Factor | Clinical Association with Increased QT | Quality of Evidence for Assoc. with Increased QT | Clinical Association with TdP | Quality of Evidence for Assoc. with TdP | Pubmed Search Link |
| Pre-eclampsia | Weak | Low | None | No evidence | link |
| Genotypic Assoc. | Yes | High | Yes | High | link |

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| Ferritin/Iron overload | Yes | Moderate | Weak | Moderate | link |
| Propionic acidemia | Yes | High | Yes | Low | link |
| Epilepsy/Seizures | Yes | Moderate | None | No evidence | link |
| Uric Acid | Weak | Low | None | No evidence | link |
| Electrical Shock | Yes | Moderate | None | No evidence | link |
| Liquid Protein Diet | Yes | High | Yes | Moderate | link |
| Sickle Cell Disease | Yes | High | Weak | Very Low | link |
| Congenital Gen. Lipodystrophy (PTRF) | Yes | Moderate | Weak | Very Low | link |
| Low density lipoprotein receptor-related protein 5 (LRP5) | None | Very Low | None | No evidence | link |
| Fatty Acid Binding Protein 4 | Weak | Moderate | None | No evidence | link |