

HCA Healthcare

Scholarly Commons

Internal Medicine

Research & Publications

9-21-2019

Anxiety Induced Pulmonary Edema: A Rare Occurrence

Anum Akhlaq MD

HCA Healthcare, anum.akhlaq@hcahealthcare.com

Neda Shahoori

HCA Healthcare, Neda.Shahoori@hcahealthcare.com

Alexandra Mary Kelada

HCA Healthcare, AlexandraMary.Kelada@hcahealthcare.com

Aftab Ahmad

HCA Healthcare, aftab.ahmad@hcahealthcare.com

Follow this and additional works at: <https://scholarlycommons.hcahealthcare.com/internal-medicine>



Part of the [Internal Medicine Commons](#), [Mental Disorders Commons](#), and the [Respiratory Tract Diseases Commons](#)

Recommended Citation

Akhlaq A, et al. Anxiety Induced Pulmonary Edema: A Rare Occurrence. Poster presented at: Florida Chapter of the American College of Physicians; September 21, 2019; Ft. Lauderdale, FL.

This Poster is brought to you for free and open access by the Research & Publications at Scholarly Commons. It has been accepted for inclusion in Internal Medicine by an authorized administrator of Scholarly Commons.

Anxiety Induced Pulmonary Edema: A Rare Occurrence

Anum Akhlaq MD; Neda Shahoori MD; AlexandraMary Kelada DO; Aftab Ahmad, MD
Department of Internal Medicine | HCA; Orange Park Medical Center; Orange Park, FL

Introduction

- Severe anxiety has been known to be associated with various deleterious cardiovascular outcomes including but not limited to myocardial infarction, ventricular fibrillation, and takotsubo cardiomyopathy.
- There is rare documentation of the association of cardiogenic pulmonary edema with acute anxiety

Case presentation

- An **18-year old** Caucasian female with past medical history of schizoaffective disorder presented to the emergency department after attempted suicide by **drug overdose**. She ingested 30 tablets of 150 mg bupropion XL and 60 tablets of 300 mg oxcarbazepine.
- Upon arrival, the patient was **intubated** for airway protection.
- During the course of her ICU stay, blood pressure (BP) and vitals fluctuated dependent on the amount of sedation administered.
- When sedation was decreased, the following would increase:
 - **Systolic BP** (200-220 mmHg) ,
 - **Pulse** (180-200 beats per minute).
- On day 13, the patient was **extubated**.
- Subsequently, she experienced the following:
 - Acute episode of **severe anxiety** (vocalizing suicidal ideation),
 - **Hypertensive emergency**,
 - Resultant **acute hypoxic respiratory failure** requiring emergent re-intubation.
- Findings suggestive of **acute cardiogenic pulmonary edema** were visualized during intubation, which was confirmed by chest X-ray.
- **Echocardiogram**, before and after the episode was **normal**.
- Once anxiety was adequately controlled, she was successfully extubated

Graph a and b show patient's vitals on day 13 of hospitalization. Circled areas demonstrate vitals at the time of anxiety-induced pulmonary edema.

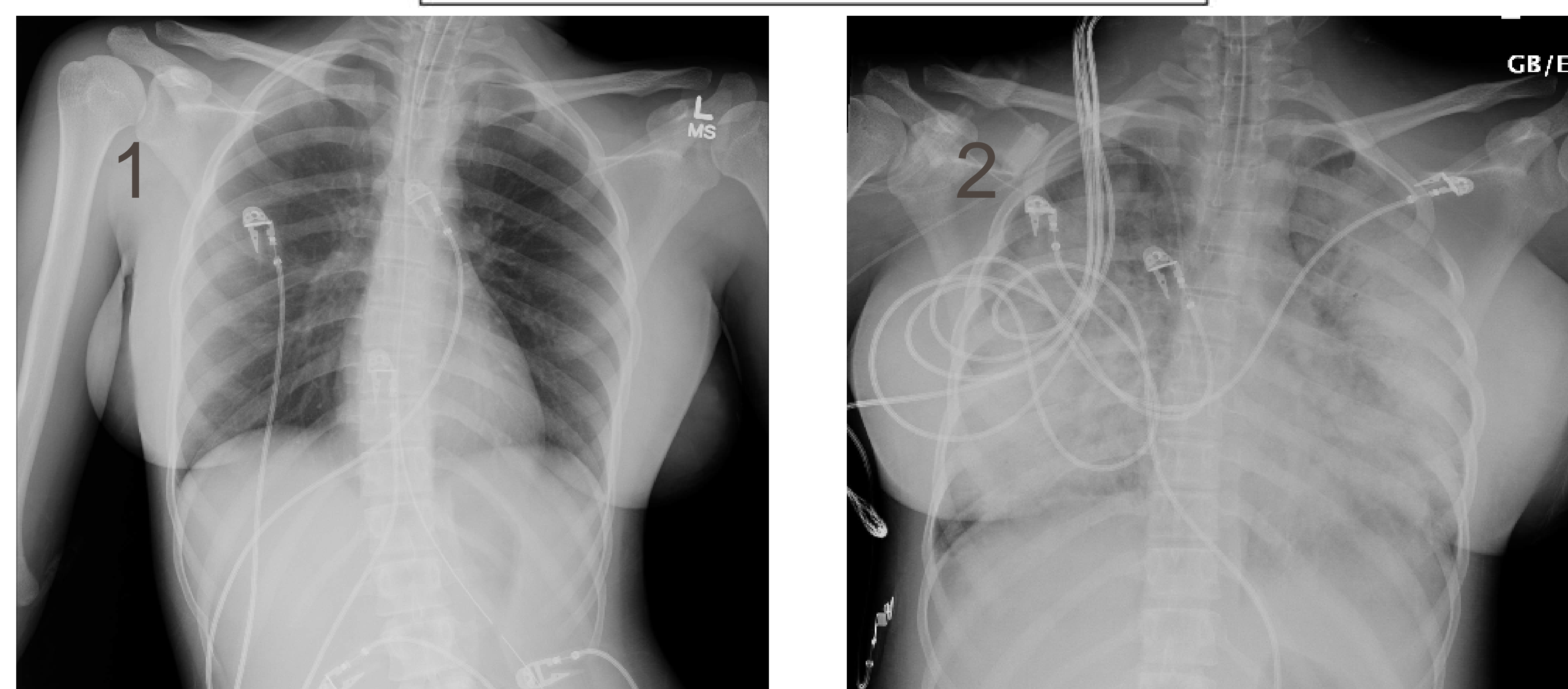
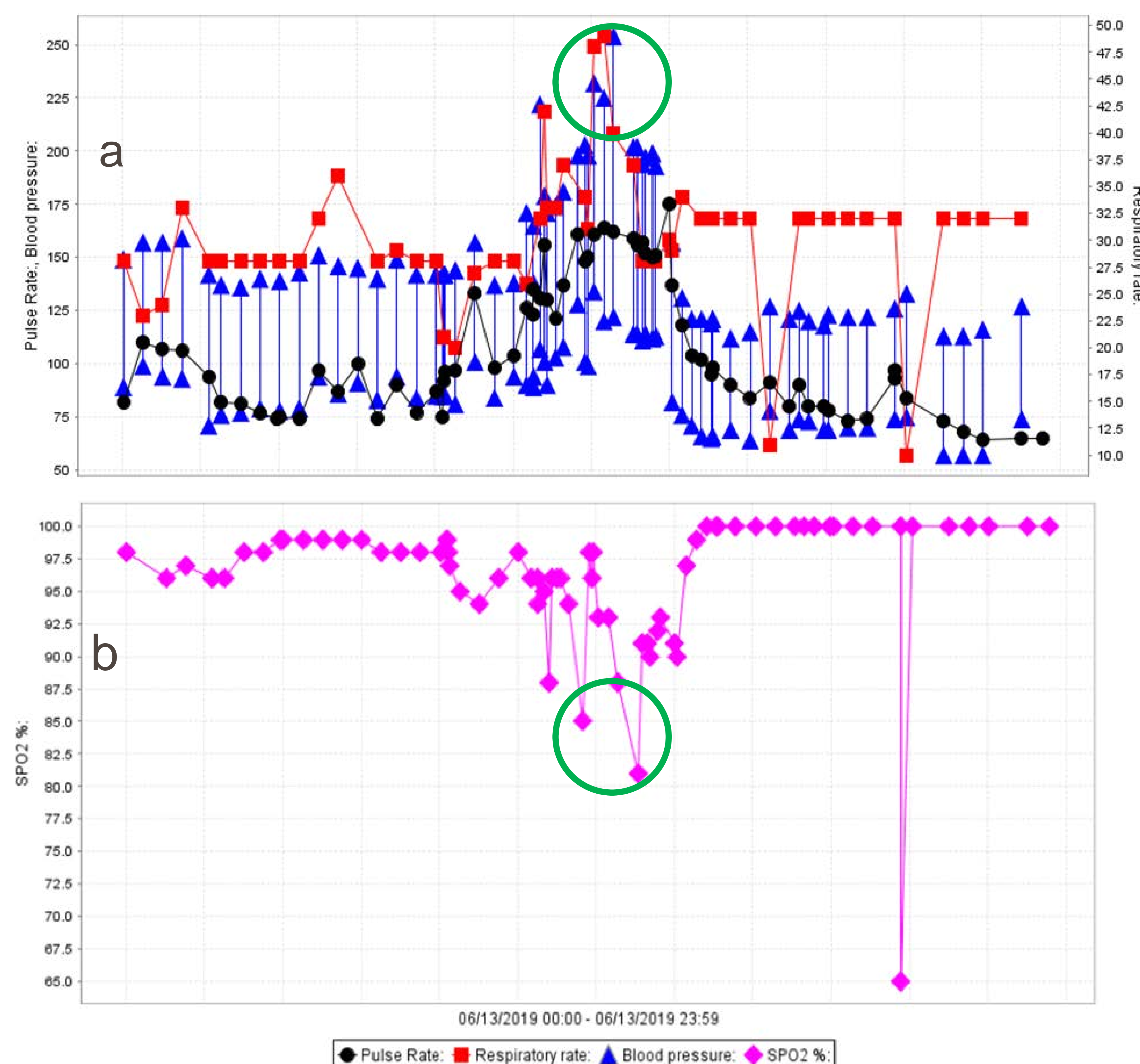


Figure 1: Chest X ray on admission: showing clear and well expanded lungs.
Figure 2: Chest X ray after the episode: showing diffuse bilateral pulmonary infiltrates (Images used with permission from Orange Park Medical Center Diagnostic Radiology.)

Discussion

- Common causes of pulmonary edema:
 - Left ventricular failure
 - Dysrhythmia
 - Cardiomyopathy
 - Myocardial infarction
 - Left ventricular outflow obstruction
- Anxiety has been reported to be associated with worse cardiac outcomes through various mechanisms:
 - Inflammation,
 - Increased coagulation markers (platelet factor 4 and beta-thromboglobulin),
 - Prolonged platelet activation by catecholamines
- This case report demonstrates a patient developing pulmonary edema by the following mechanism:
 - Acute anxiety → ↑ catecholamine release → profound ↑ HR & ↑ BP (↑ systemic vascular resistance) → ↑ cardiac afterload → ↑ LV filling pressure → backflow into pulmonary vasculature → pulmonary vascular congestion → pulmonary edema

Conclusion

- This case highlights that episodes of anxiety with resultant hypertensive crisis can be severe enough to result in pulmonary edema in an otherwise young, healthy adult with no significant chronic medical comorbidities and a structurally normal heart

References

- Celano CM, Daunis DJ, Lokko HN, Campbell KA, Huffman JC. Anxiety Disorders and Cardiovascular Disease. *Current Psychiatry Reports*. 2016;18(11).
- Wilmshurst PT. Pulmonary oedema induced by emotional stress, by sexual intercourse, and by exertion in a cold environment in people without evidence of heart disease. *Heart*. 2004Jan;90(7):806-7.
- Pitsavos C, Panagiotakos DB, Papageorgiou C, Tsetsekou E, Soldatos C, Stefanadis C. Anxiety in relation to inflammation and coagulation markers, among healthy adults: The ATTICA Study. *Atherosclerosis*. 2006;185(2):320-6.
- Strike PC, Magid K, Brydon L, Edwards S, Mcewan JR, Steptoe A. Exaggerated Platelet and Hemodynamic Reactivity to Mental Stress in Men With Coronary Artery Disease. *Psychosomatic Medicine*. 2004;66(4):492-500.