

# Proton Pump Inhibitors (PPIs) and Drug-Induced Hyperhidrosis: A Clinical Case

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## Abstract

**Objective:** To discuss the role of a proton pump inhibitor (pantoprazole) as a cause of night sweats in an older person.

**Methods:** Our case involves a 73 year-old man who experienced night sweats while taking pantoprazole to treat gastroesophageal reflux disease.

**Results:** Night sweats disappeared ten days after ceasing pantoprazole. They recurred two months later, one week after recommencing pantoprazole.

**Conclusion:** Proton pump inhibitors are a rare cause of night sweats in older persons.

tympenic temperature (37°C). There were no cardiac murmurs, abnormal breath sounds, tenderness, arthropathy, clubbing, lymphadenopathy, Roth spots, nail changes, rash or abdominal, pelvic or testicular masses. Digital rectal examination was normal. Tympanic membranes, teeth and oropharynx had normal appearances.

In his diary of symptoms over the next month, the patient documented sweats occurring nightly to second nightly, with oral temperatures up to 36.3°C. The following investigations found no evidence of malignancy, infection, autoimmune disease or endocrinopathy: urinary dipstick, microscopy and culture, full blood count, erythrocyte sedimentation rate, C-reactive protein, thyroid stimulating hormone, blood culture, interferon gamma release assay, serum electrophoresis, serology (antinuclear antibody, double-stranded DNA, endonuclear antibody, human immunodeficiency virus 1 and 2, hepatitis B virus, hepatitis C virus and syphilis), urinary catecholamines, 5-hydroxyindoleacetic acid and serotonin, renal ultrasound, thoracic, abdominal and pelvic computed tomography and whole body fludeoxyglucose positron emission tomography.

Sweating stopped within ten days of ceasing pantoprazole and did not return until two months later, one week after pantoprazole was recommenced to treat severe heartburn from GORD. Although, histamine-2-blockers and other PPIs did not result in night sweats, the patient felt that they did not control heartburn adequately and therefore resumed pantoprazole.

## Discussion

Hyperhidrosis refers to excessive sweating (i.e., more than is required for reducing temperature) in response to heat stress. Night sweats refer to nocturnal hyperhidrosis occurring in the absence of overheating environments, clothing or bed linen. When night sweats are severe, a change of clothing, bed linen or both is required due to drenching. While night sweats may be symptomatic of malignancy, infection, autoimmune disease or endocrinopathy in some cases, they do not predict increased mortality in most older persons [1,2].

Hyperhidrosis can be an adverse effect of many drug classes, including cholinesterase inhibitors, selective serotonin

## Case Study

A 73 year-old man presented with a two-year history of profuse night sweats, drenching his pyjamas. The night sweats began one month after commencing pantoprazole to treat GORD. There was no history of flushing, hot flashes, nausea, anorexia, weight loss, cough, breathlessness, rigors, pain, myalgia, change in bowel habit, rectal bleeding, dysuria or prostatism.

His past history included hypertension, gout, osteoarthritic back pain and hypercholesterolemia but not malignancy, autoimmune disease, tuberculosis or malaria. His medications were oral pantoprazole 40 mg nocte, irbesartan 300 mg mane, hydrochlorothiazide 12.5 mg mane, allopurinol 300 mg mane and atorvastatin 10 mg nocte.

He was born in Italy but had not travelled overseas in the last thirty years or visited rural regions or scrubland. There was no family history of inflammatory or infective disorders. He was a retired builder and had stopped smoking over twenty years earlier. He consumed three standard drinks of alcohol (glasses of red wine) daily.

He had normal blood pressure (140/90), heart rate (68 beats per minute), respiratory rate (16 breaths per minute) and

reuptake inhibitors, tricyclic antidepressants, antiglaucoma medications and opioids, due to their effects at many levels of the thermoregulatory pathway [3]. Excessive sweating has been reported as an uncommon adverse effect of omeprazole but has not been recognised with other PPIs [4]. The mechanism of this side effect is unclear. It is important to diagnose the cause of night sweats without subjecting the patient to unnecessary and expensive investigations, especially when the cause is a medication. Management of drug-induced night sweats includes medication discontinuation, substitution or dose reduction [1,3].

## References

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