

Prinzmetal's angina

Prinzmetal's angina (variant AP, vasospastic AP, angina inversa) is a specific type of angina.

- It is caused by **spasm** of the epicardial coronary vessel (spasm can affect two or more coronary vessels simultaneously).
- On ECG we observe **transient ST segment elevation**.

Prinzmetal angina:



It was first described in 1959 by American cardiologist Myron Prinzmetal.^[1]

Etiopathogenesis

Vasoconstrictor stimulus (histamine, serotonin, ergonovine, acetylcholine, noradrenaline, blood pH) + local hyperreactivity of coronary arteries to vasoconstrictor stimulus → epicardial coronary artery spasm.^{[2][3]}

Most coronary spasms manifest clinically as angina pectoris and resolve spontaneously. However, prolonged spasms may result in myocardial infarction, arrhythmias or sudden cardiac death.^[3]

Clinical signs

The typical symptoms are **angina**. Their incidence is often significantly higher depending on the weather and season; they are more common in autumn and winter during cold weather. Furthermore, Prinzmetal's AP can cause a variety of **arrhythmias** (from AV block to ventricular fibrillation).^[3]



Prinzmetalova AP

Diagnostics^{[2][3]}

- Prinzmetal's AP **is not** tied to physical activity. Angina pectoris occurs **most often at night** (median is 4 am).
- During an episode of angina pectoris, **ST elevation** (or ST depression, inversion or pseudonormalisation of the T wave) is observed on the ECG. **Holter monitoring** can be used to detect ST elevation.
- **Provocation tests:** provocation by acetylcholine, methacholine, methylergonovine; provocation by exercise, cold, hyperventilation (hyperventilation echocardiography - the patient is hyperventilated during echocardiography, which may initiate coronary spasm, which subsequently results in disturbed myocardial ischemic kinetics).

If coronary angiography is negative, detection of ST elevation during an attack is sufficient to diagnose Prinzmetal's AP.

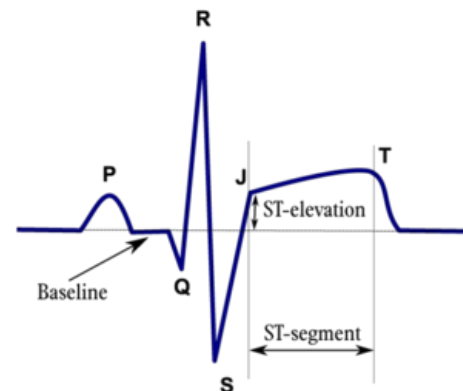
Treatment

Pharmacological therapy is similar to that for classic AP. Antiplatelet therapy is controversial.

- **Healthy lifestyle + elimination of provoking factors** (smoking, alcohol, cocaine, emotional stress, hyperventilation, hypomagnesemia, rapid cooling).

- **Pharmacotherapy'** (calcium channel blockers, nitrates, α -blockers).
- **Intracoronary stenting'**.
- **Sympathectomy'** (in resistant patients).

Betablockers are contraindicated because they increase the risk of spasm



How to measure ST elevation?

ST elevation is measured at the so-called J-point

References

Related articles

- Angina pectoris
- Sudden cardiac death
- Myocardial infarction
- Cardiotonics

References

1. PRINZMETAL, M – KENNAMER, R – MERLISS, R. , et al. Angina pectoris. I. A variant form of angina pectoris; preliminary report. *Am J Med* [online]. 1959, vol. 27, p. 375-88, Available from <<https://www.ncbi.nlm.nih.gov/pubmed/14434946>>. ISSN 0002-9343.
2. FEDORCO, Marián. , et al. Variant (Prinzmetal's) angina as an uncommon cause of cardiac syncope. *Cor et Vasa*. 2008, vol. 50, no. 9, p. 348-351, ISSN 1803-7712.
3. SKÁLA, T.. , et al. Malignant arrhythmia in a patient with variant (Prinzmetal's) angina. *Internal Medicine*. 2007, vol. 53, no. 6, p. 724-728, ISSN 0042-773X.

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