

# BİRİNCİ BASAMAK İÇİN TEMEL EKG OKUMA BECERİSİ



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Hiçbir şey basit anlatılamayacak kadar karmaşık değildir

*Albert Einstein*



# AMAÇ

- Birinci basamakta EKG deęerlendirmede gerekli olan temel becerileri kazanmak.



# Öğrenim hedefleri

- Normal EKG'yi tanıyabilmek
- Birinci basamakta en sık görülen EKG tanılarını ayırt edebilmek
- Kalbin elektrik iletisi hakkında temel bilgi sahibi olmak
- EKG değerlendirmede sistematik bir yaklaşım kazanmak



# Ne Zaman EKG Çekeriz?

- Göğüs ağrısı (%57.1)
- Bayılma - çarpıntı (%30.2)
- Nefes darlığı (%4.7)
- Hipertansiyon (%3.0)
- Diğer (%5.0)



# EKG'de Neler Buluruz?

	%
Normal sinüs ritmi	22
Atriyal fibrilasyon	10
Non-spesific ST ve/ veya T dalga değışiklikleri	10
Aritmiler	8,16
Miyokard iskemisi düşündüren ST / T değışiklikleri	7
MI (eski)	6
Ventriküler prematüre atımlar	5
Kalpte Büyüme	5
Erken repolarizasyon	5
Sağ dal bloğu (inkomplet)	3

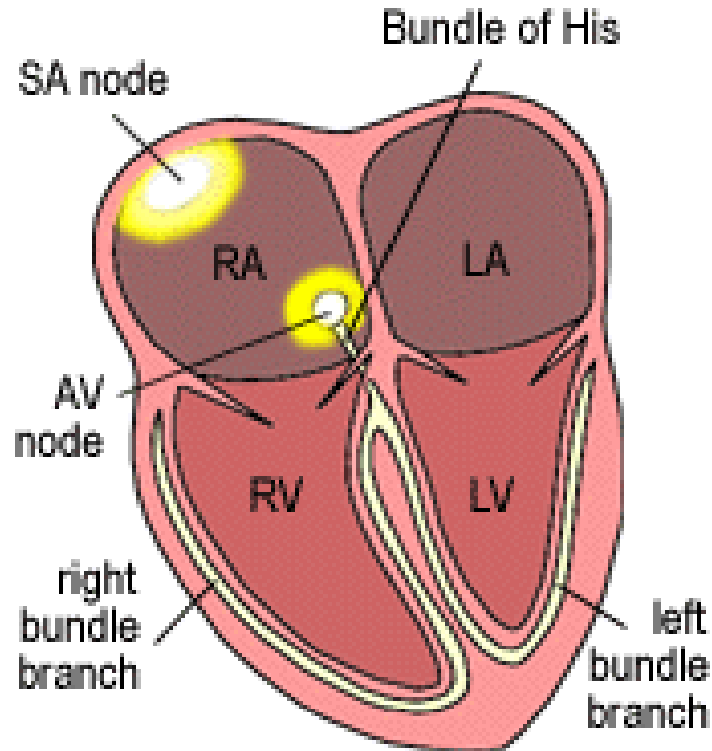


# EKG'de Neler Buluruz?

	%
Sol dal bloęu (inkomplet)	3
Birinci derece AV blok	2
Sol ön dalcık bloęu	2
MI (yeni ve yakın)	2
Atrial flutter	1
Saę dal bloęu (komplet)	1
Sol dal bloęu (komplet)	1
Uzamıř QT	0,7
Akut perikardit düřündüren ST / T deęiřiklikleri	0,5
Pacemaker ritmi	0,5

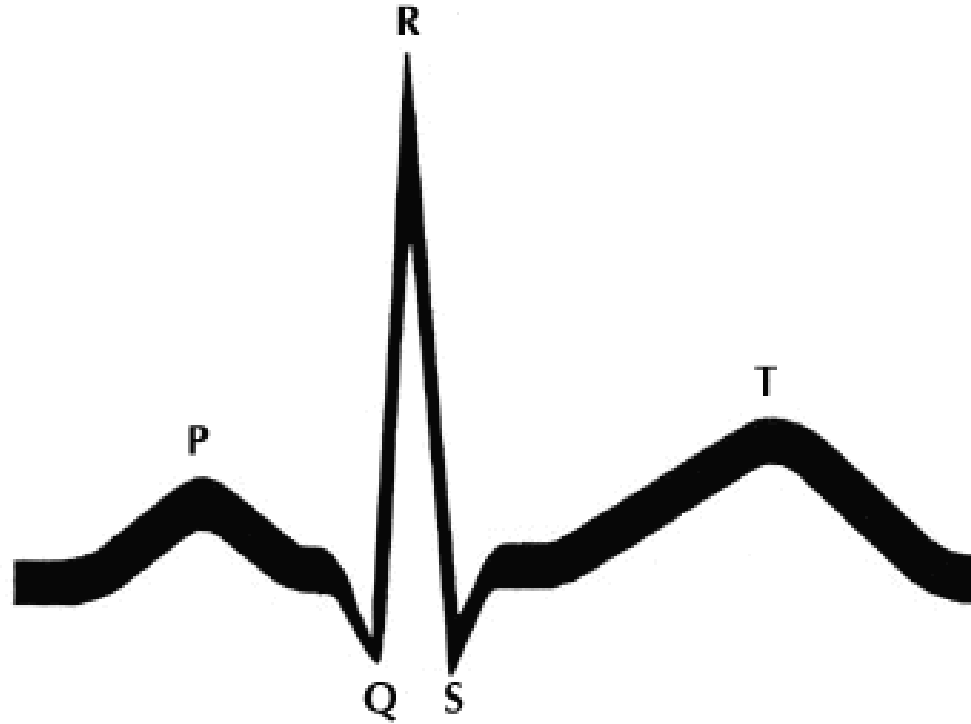


# Kalbin uyarı iletimi

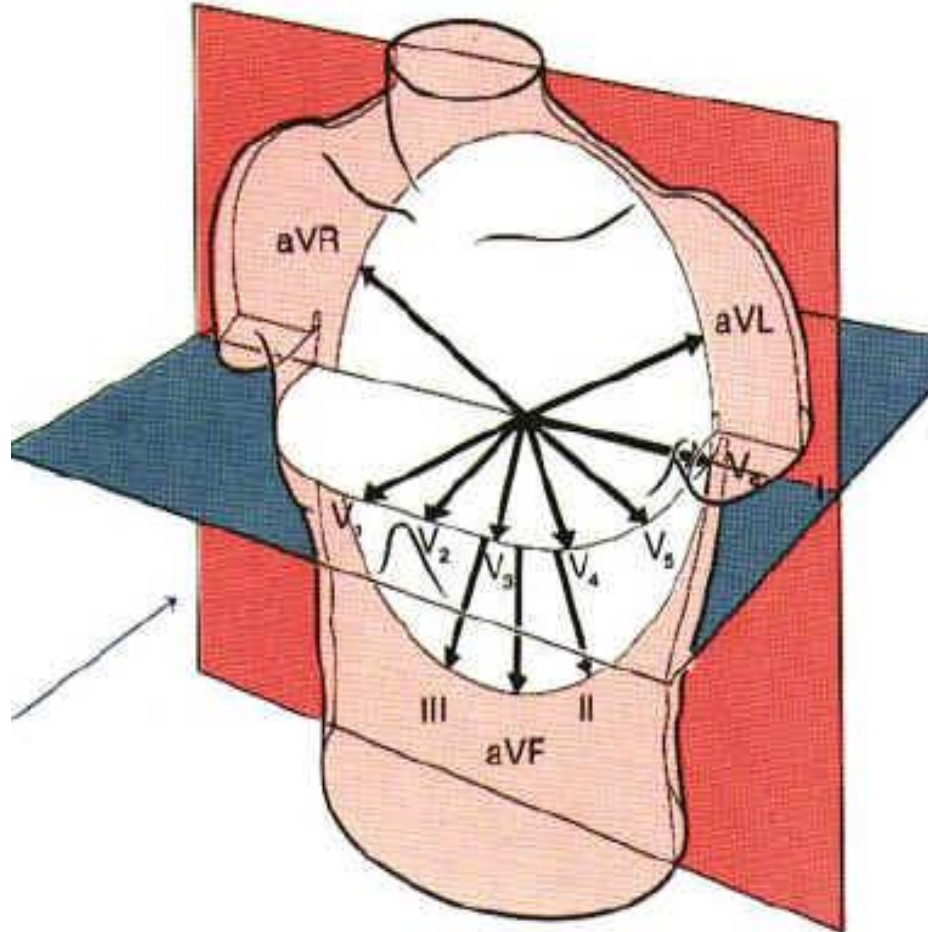




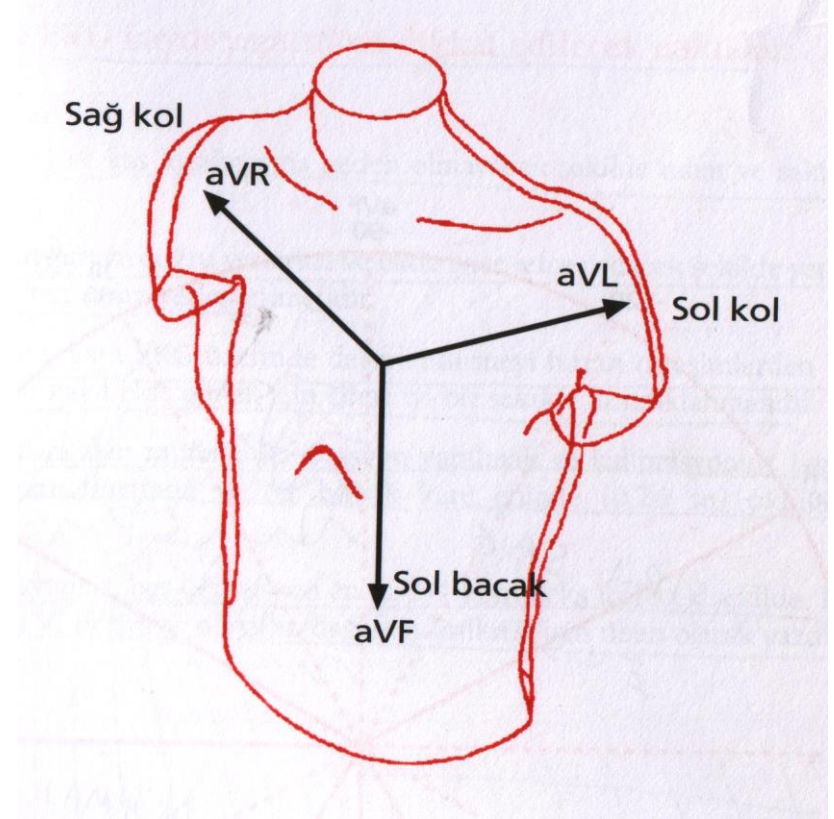
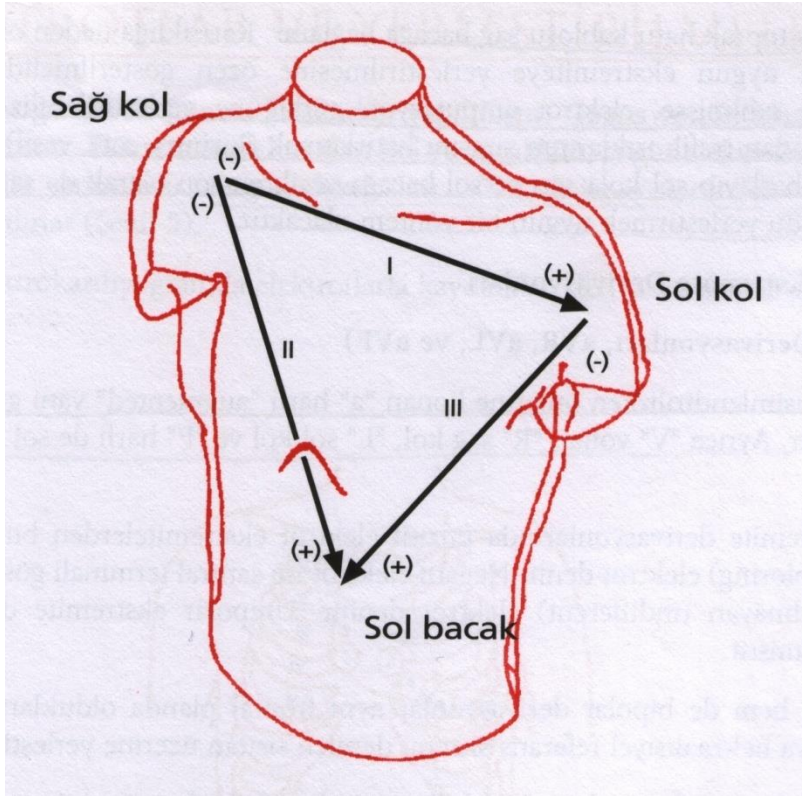
# Dalgaların adlandırılması



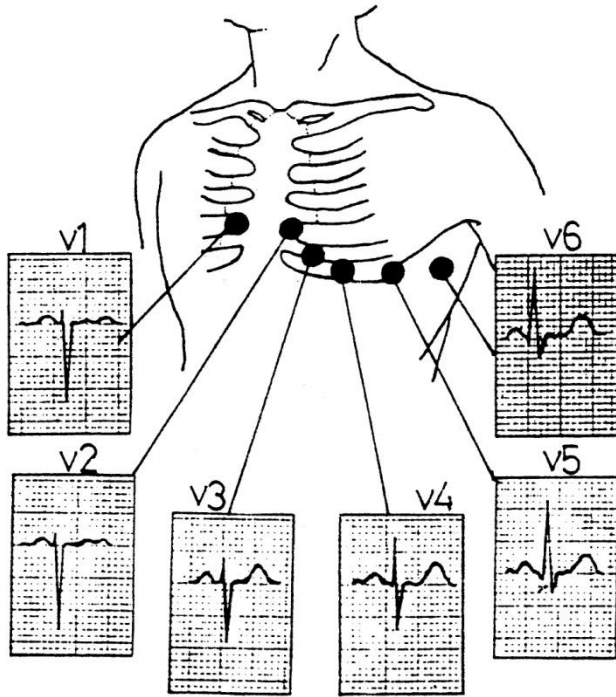
# Derivasyonlar



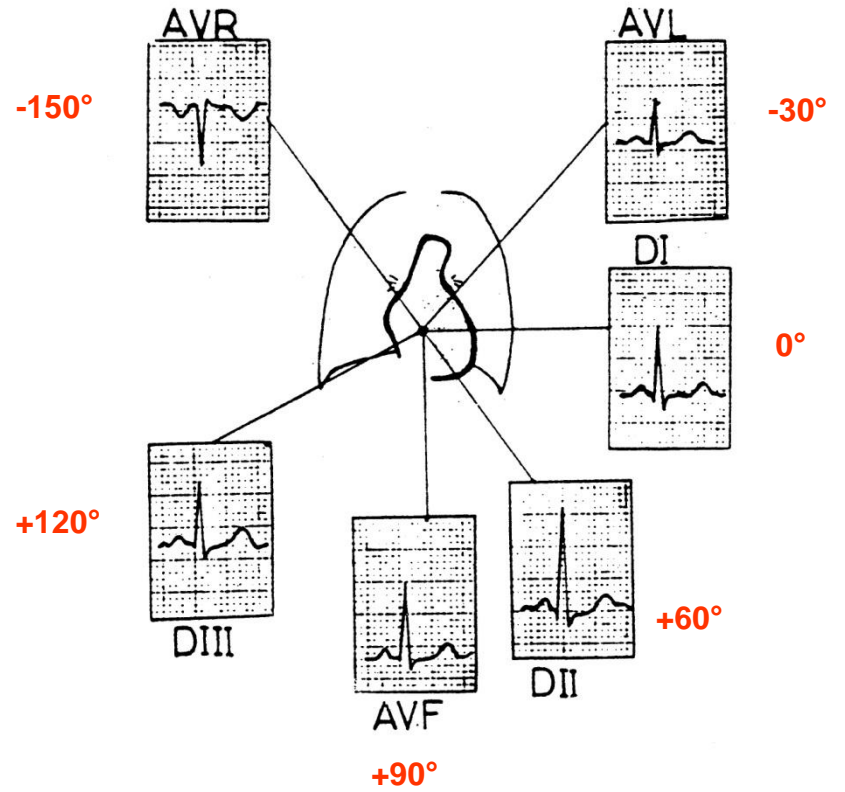
# Derivasyonlar



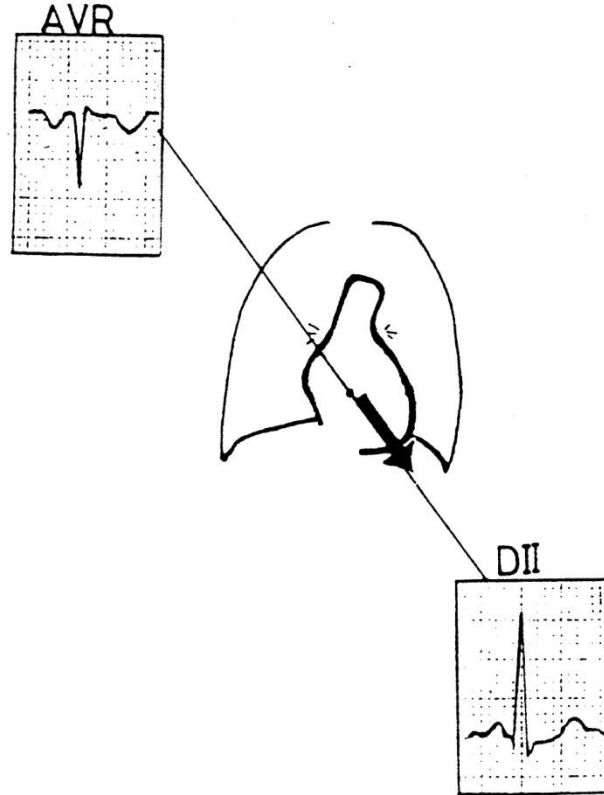
## Göğüs derivasyonları

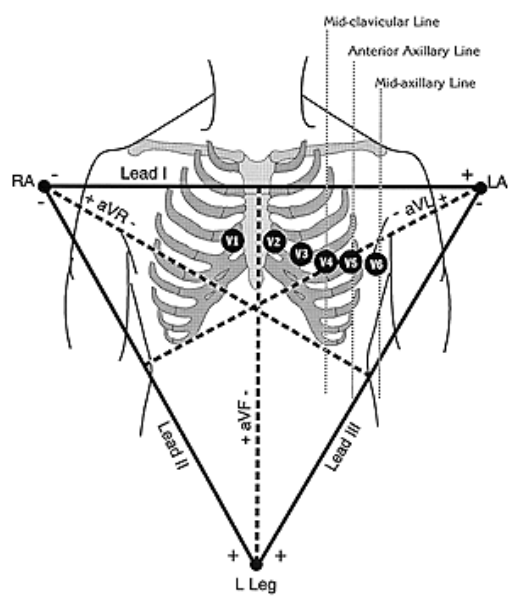


## Ekstremité derivasyonları

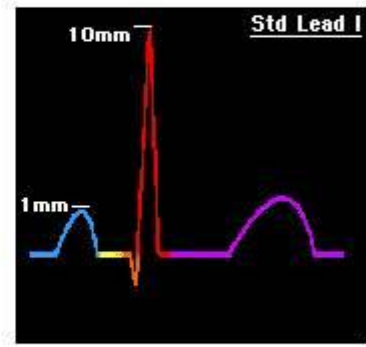
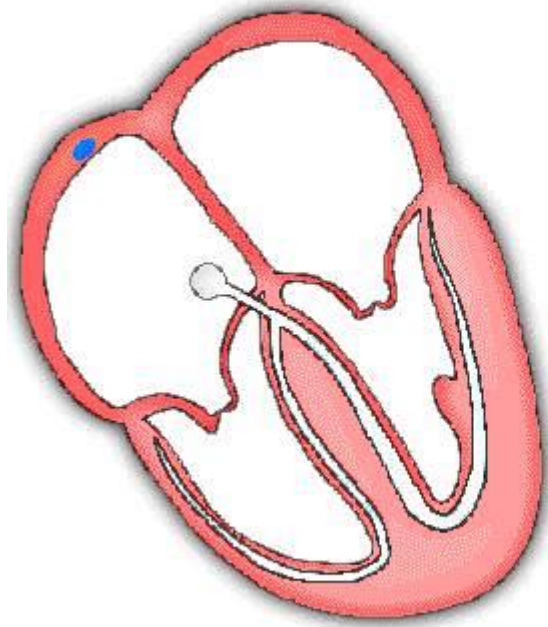


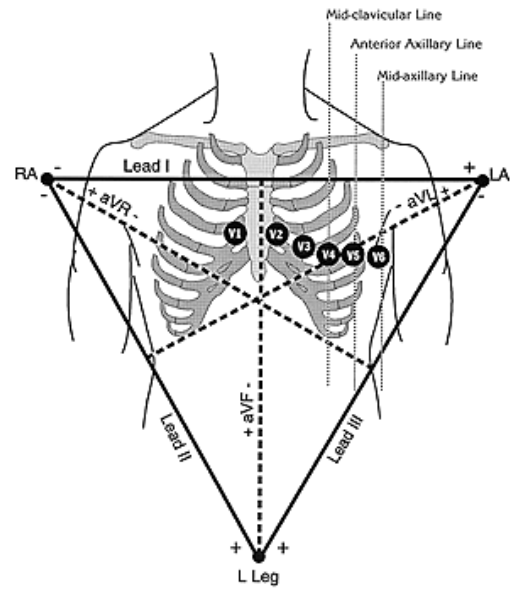
# EKG'de dalgalar nasıl oluşur?



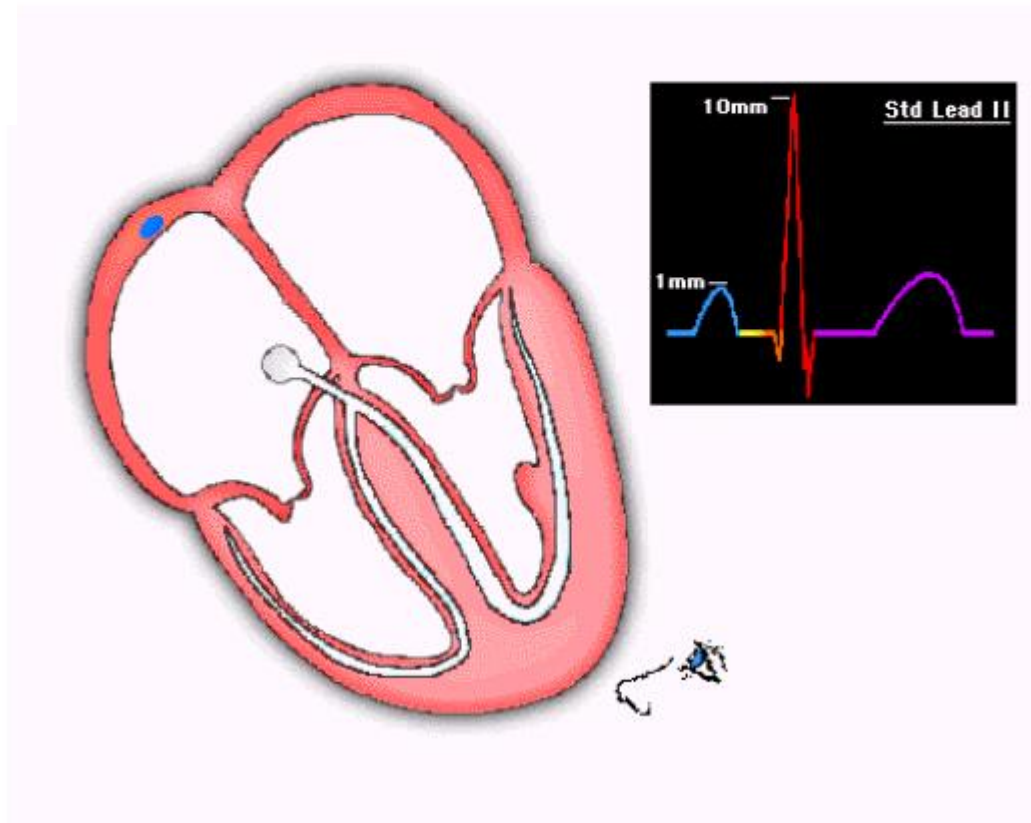


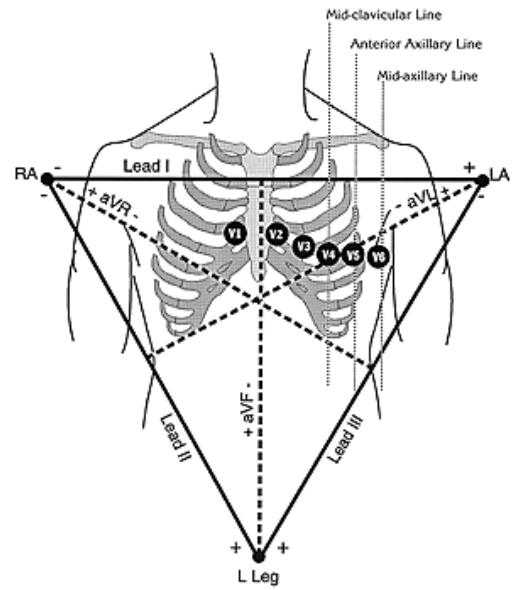
DI



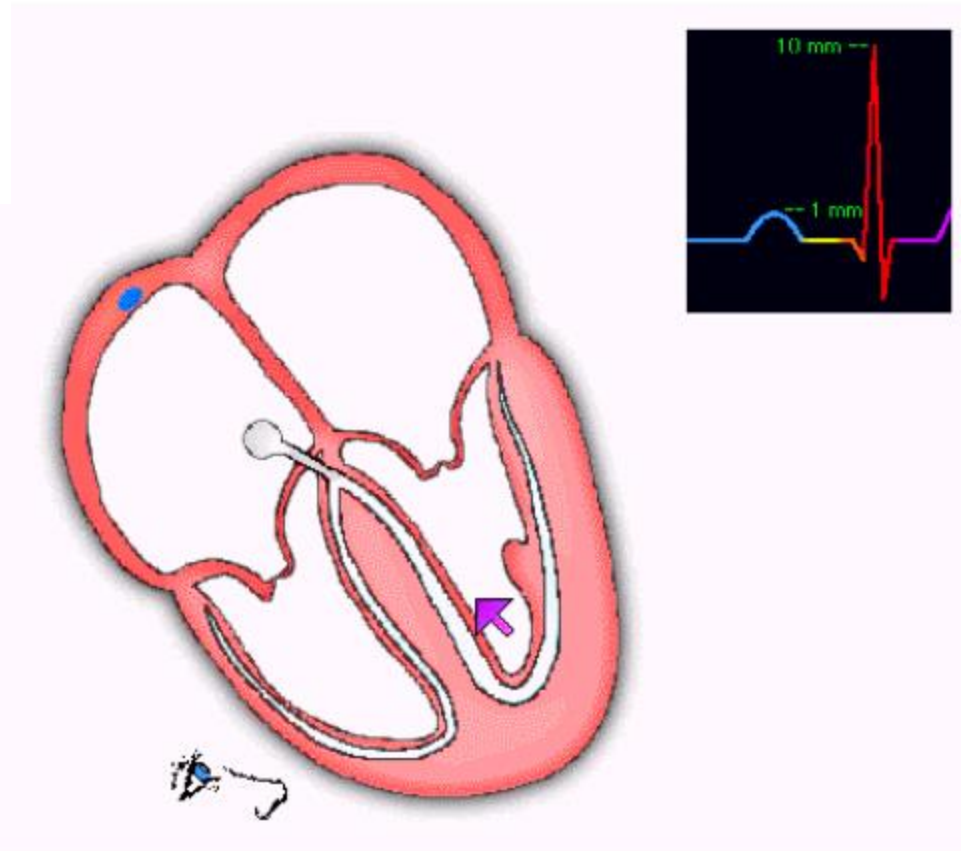


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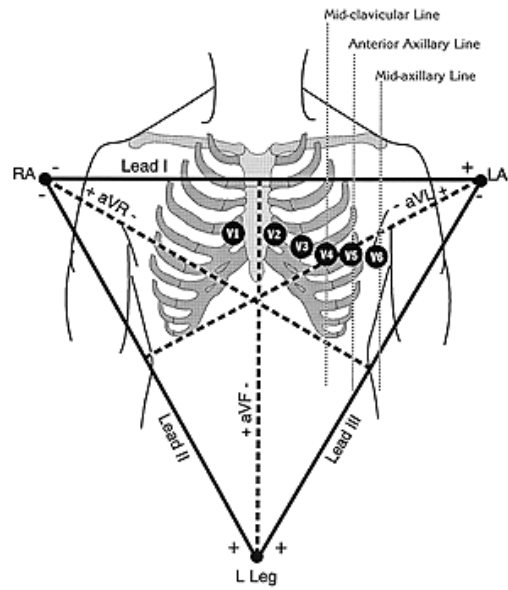




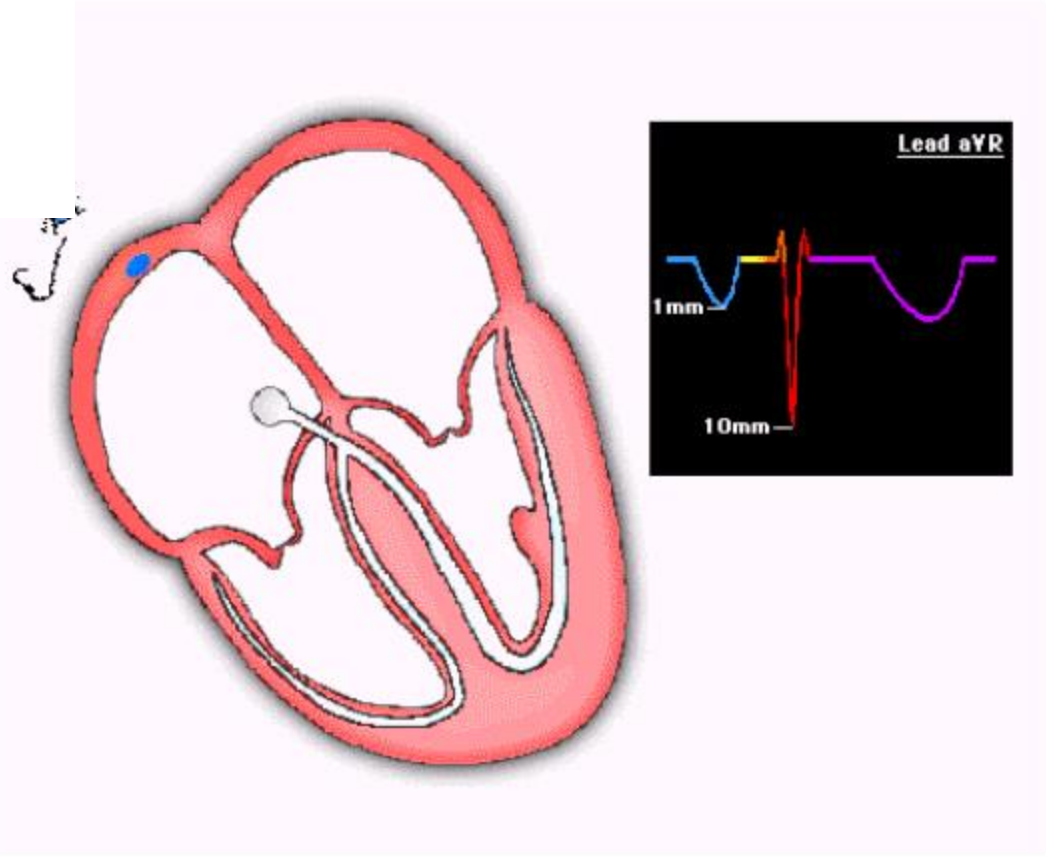
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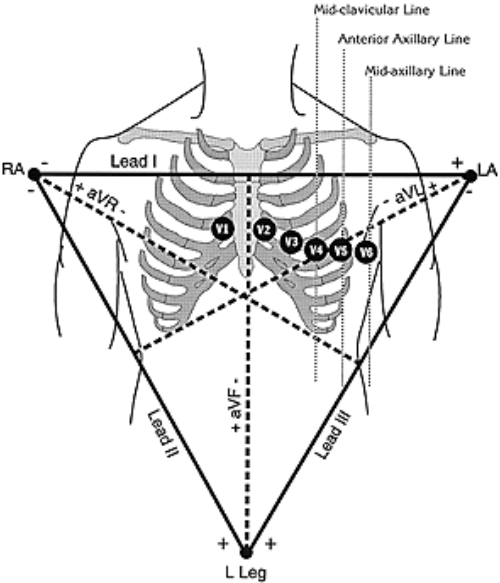




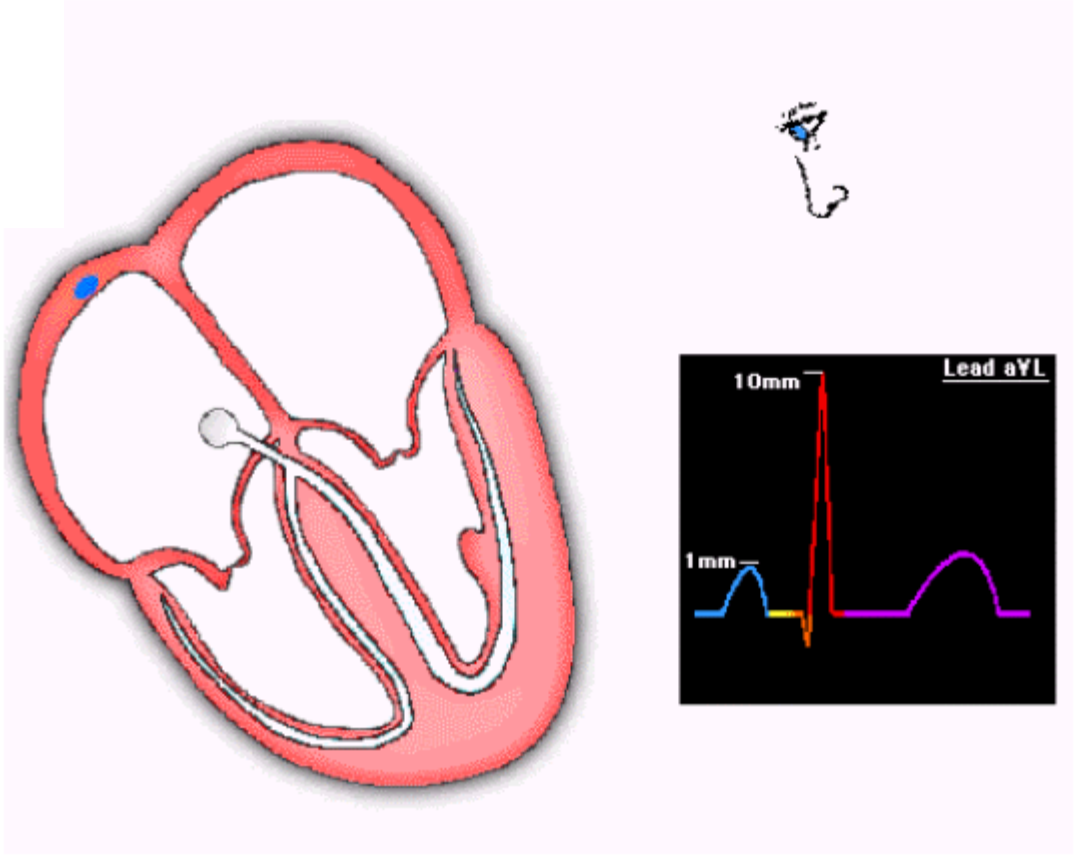


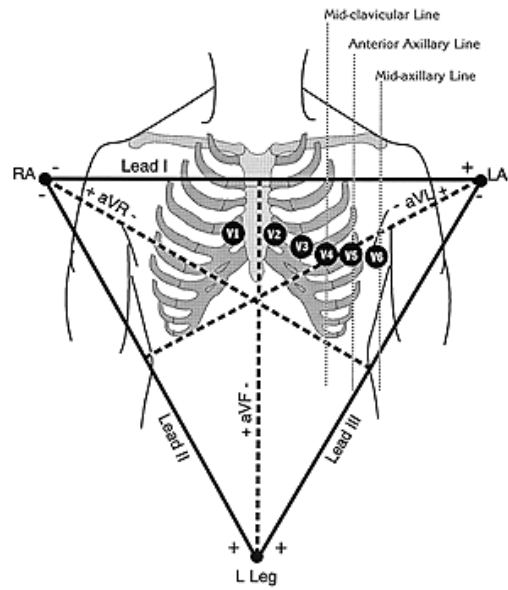
# aVR



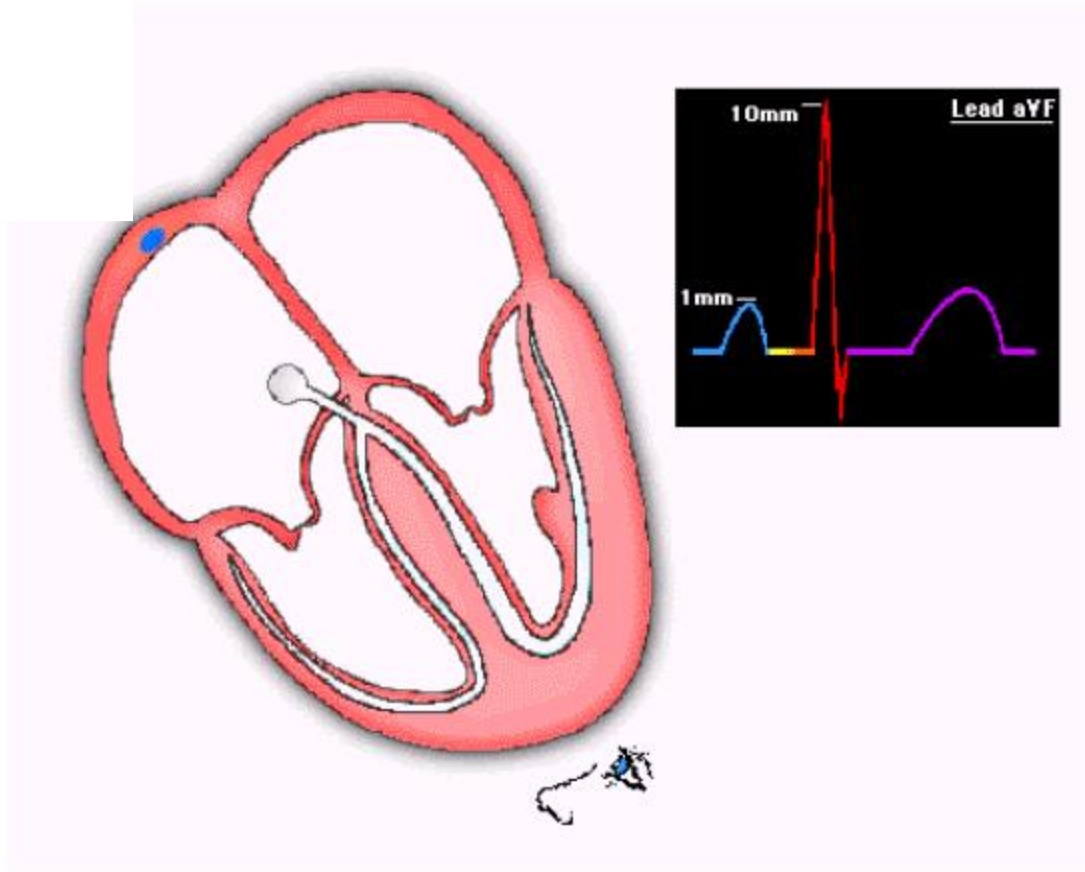


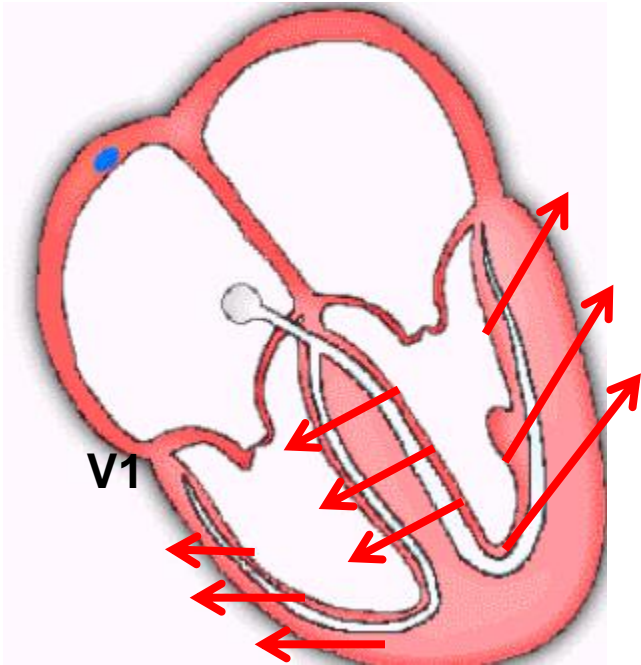
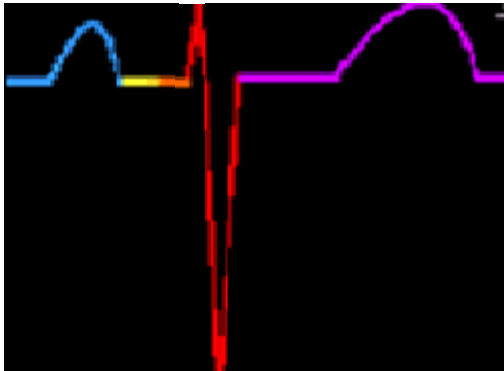
# aVL





# aVF

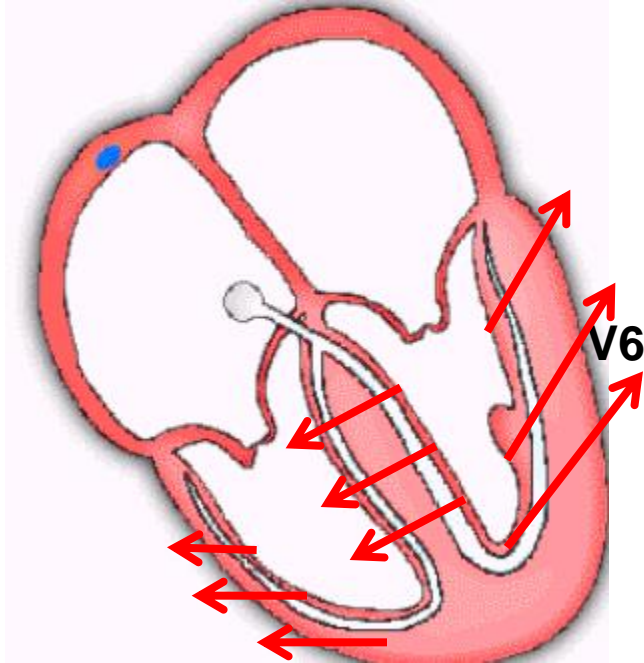
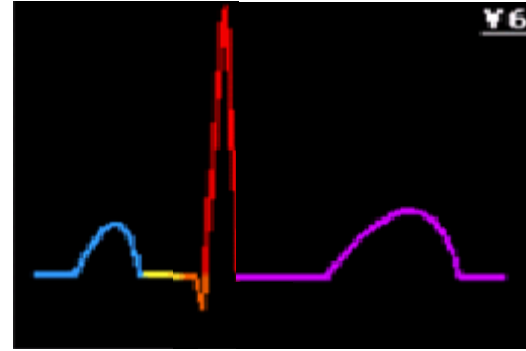




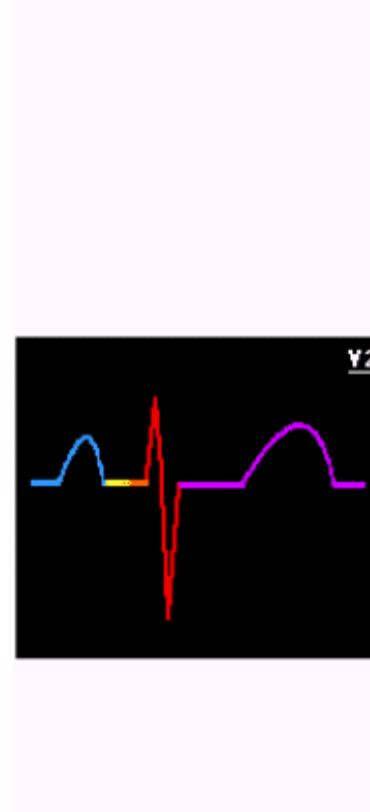
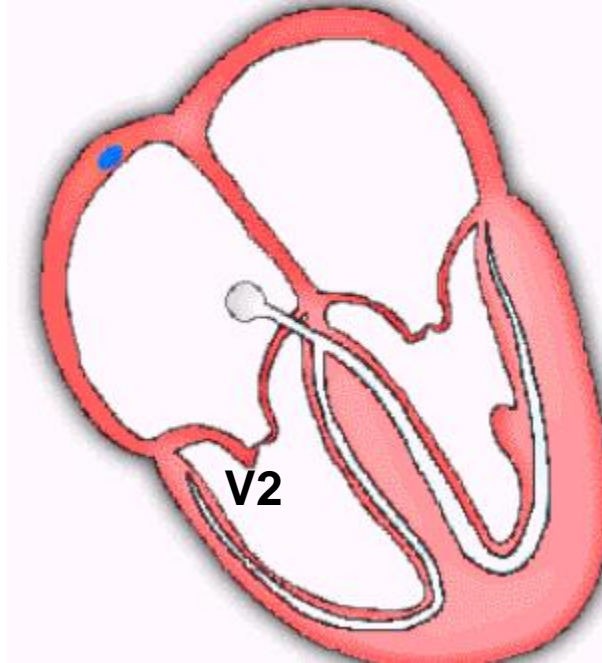
V1



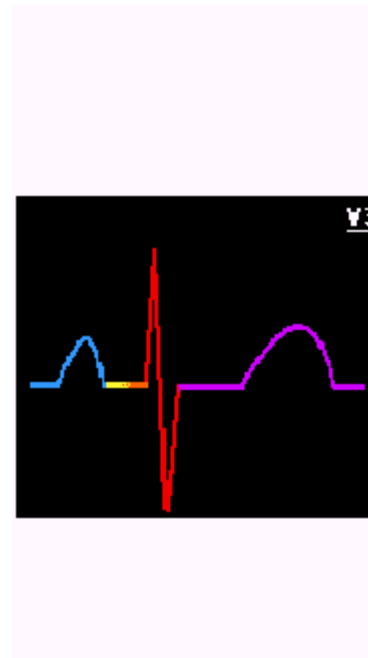
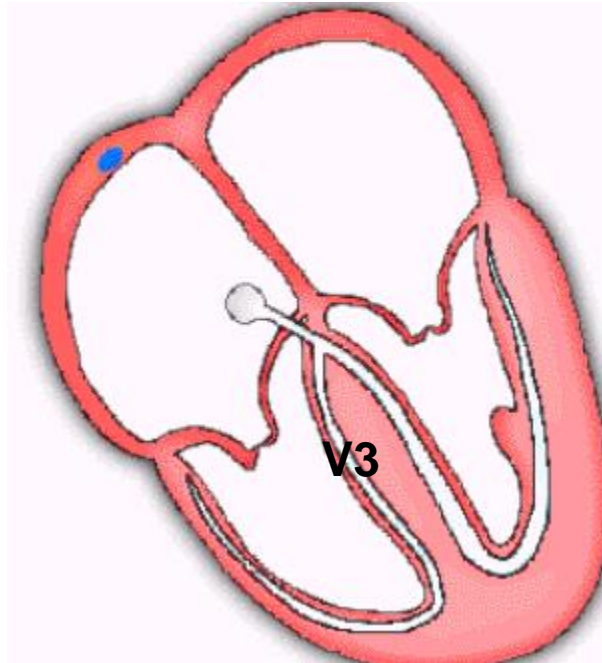
# V6



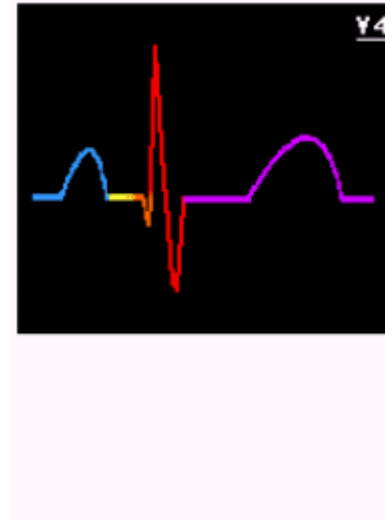
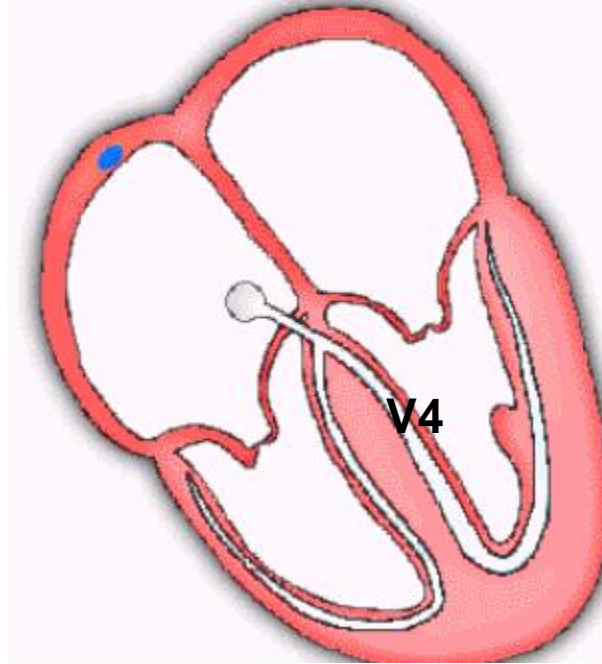
# V2



# V3

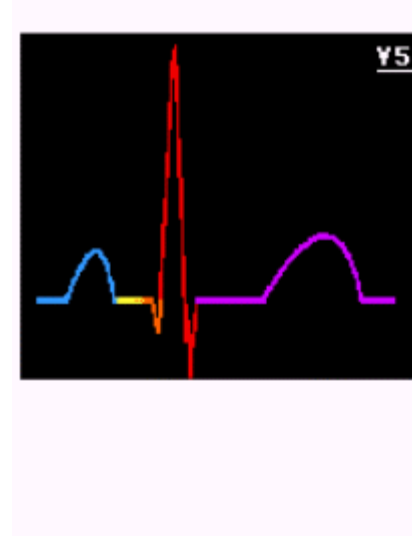
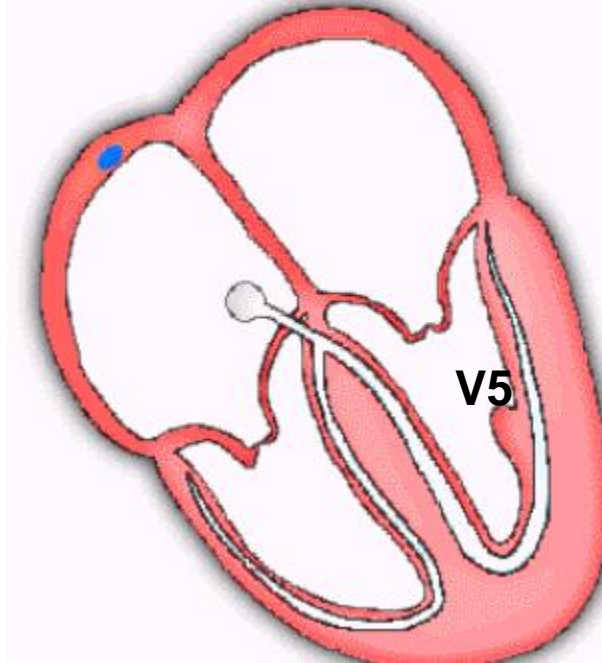


# V4

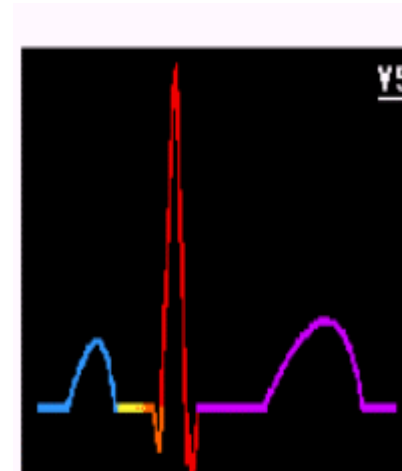
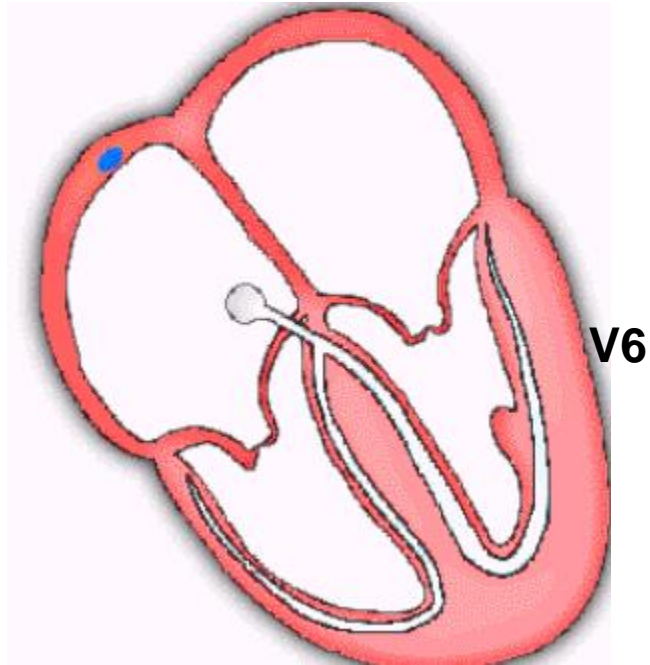




# V5



# V6



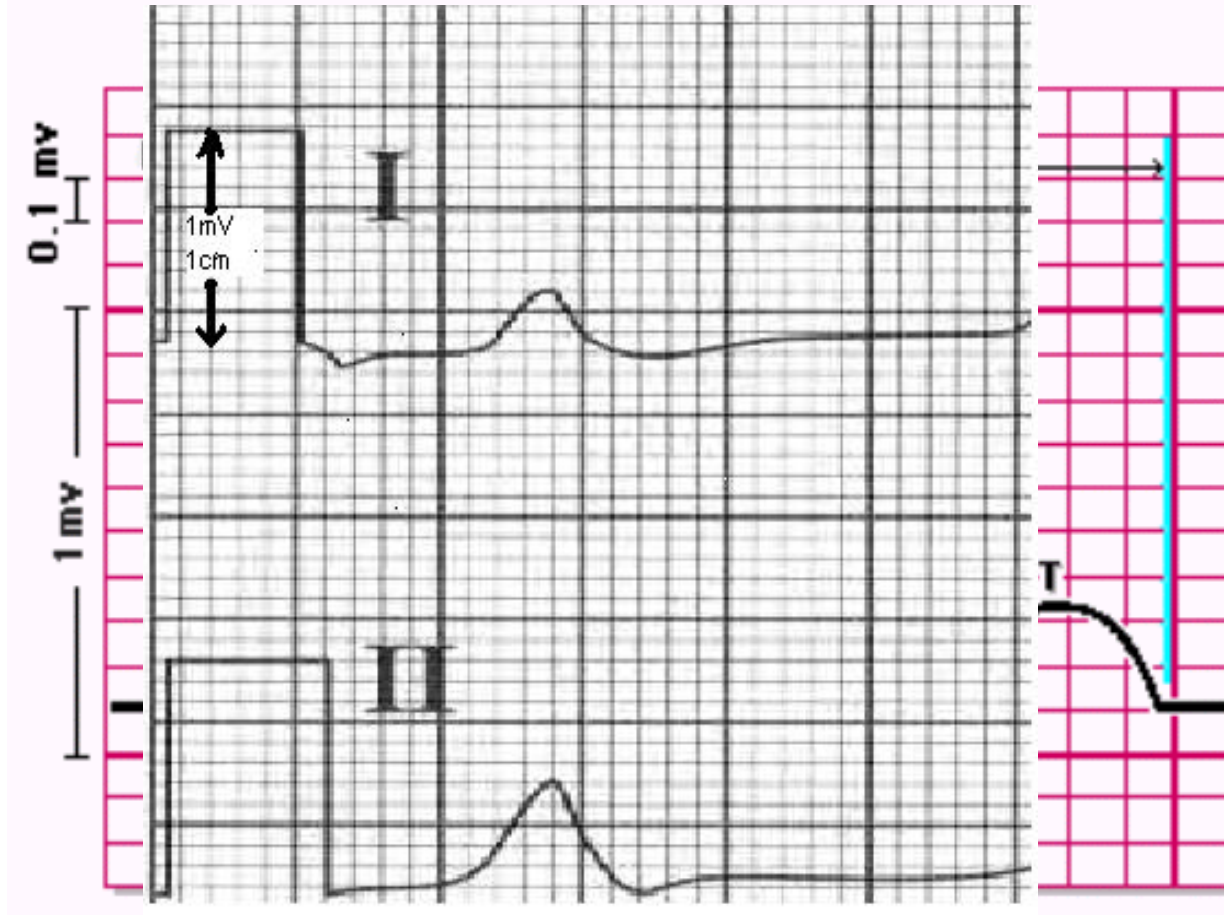
# EKG'yi nasıl deęerlendirelim?

- Ölçümler
- Ritim analizi
- İletim analizi
- Dalgaların şekli
- EKG yorumu
- Önceki EKG ile karşılaştırma



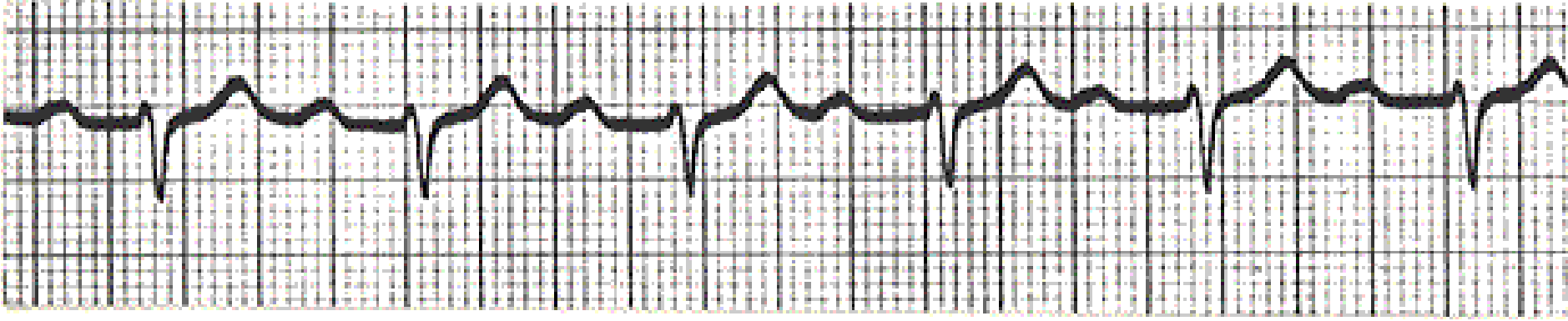
# Ölçümler

## Kalibrasyon



# P-R aralığını ölçelim

- 0.28 sn



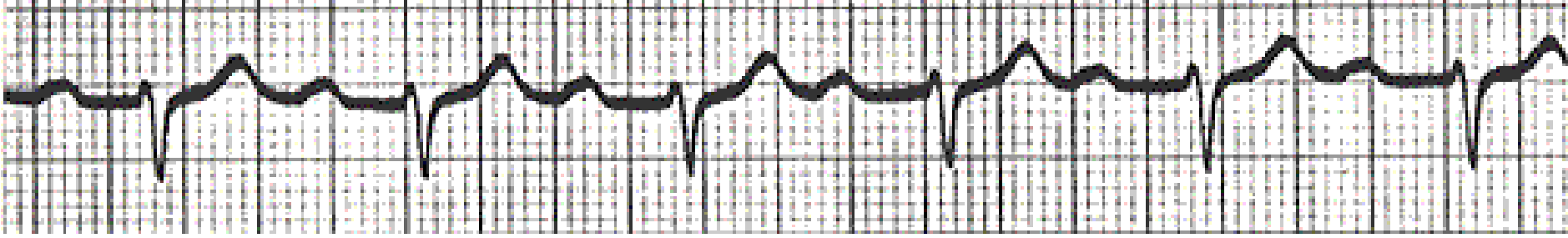
# QRS aralığını ölçelim

- 0.08 sn



# Kalp hızını hesaplayalım

- 90/dk



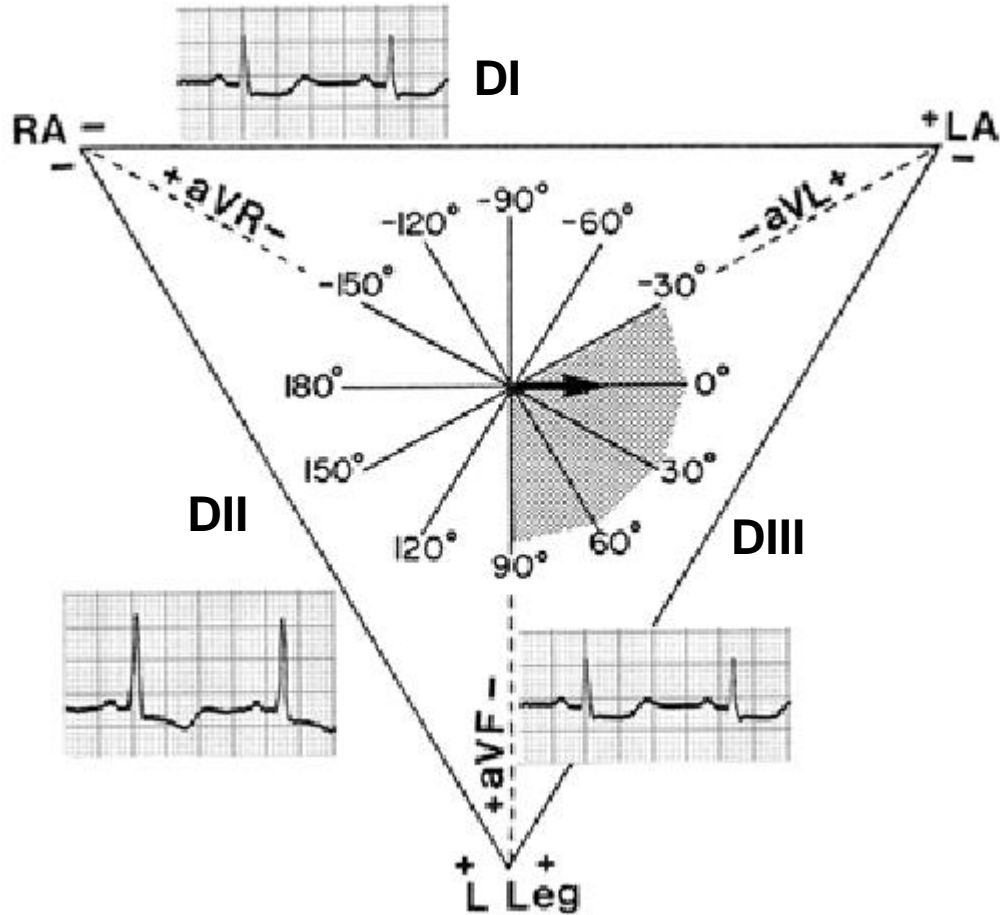
# Normal EKG

- Kalp hızı 60 – 100 / dakika
- PR: 0.12 - 0.20 sn
- QRS: 0.06 - 0.12 sn
- QT  $\leq$  0.42 sn
- Ritim : NSR
- Vertikal plan QRS aksı (+90°) – (-30°)
- İleti : SA – AV – IV



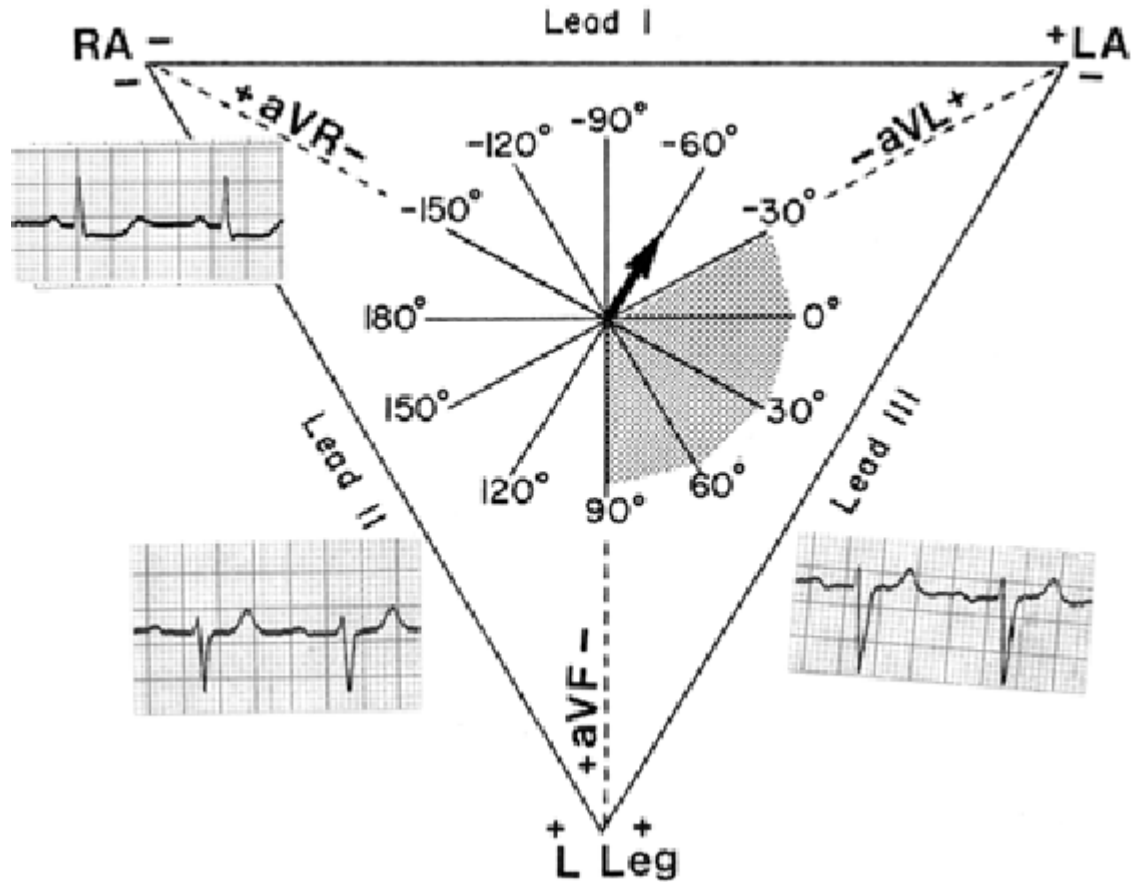


# Normal aks



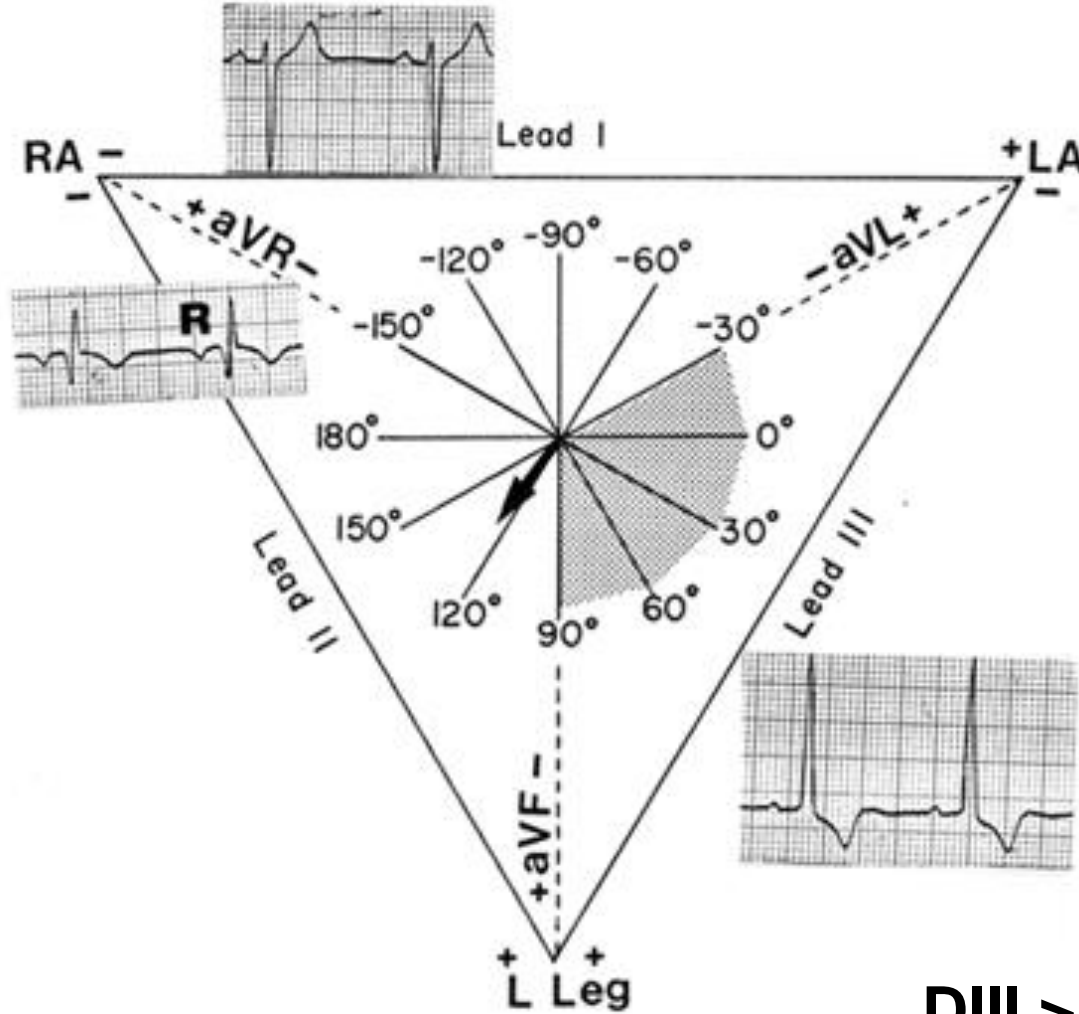
**DII > DI ve DIII**

# Sol aks deviasyonu

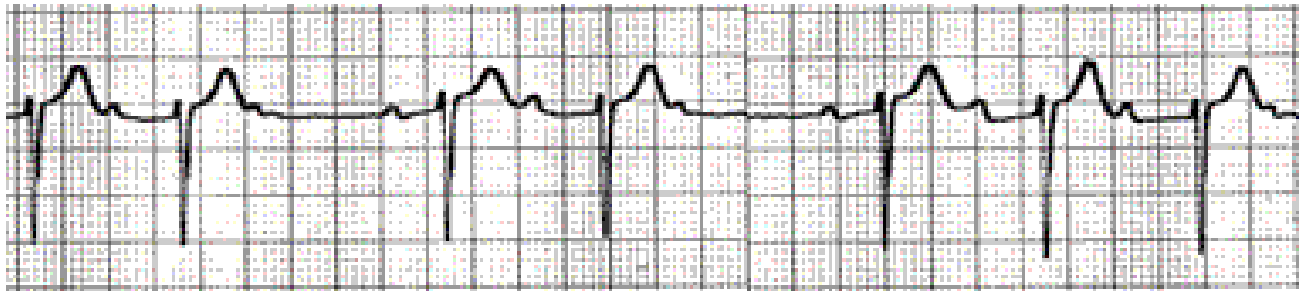
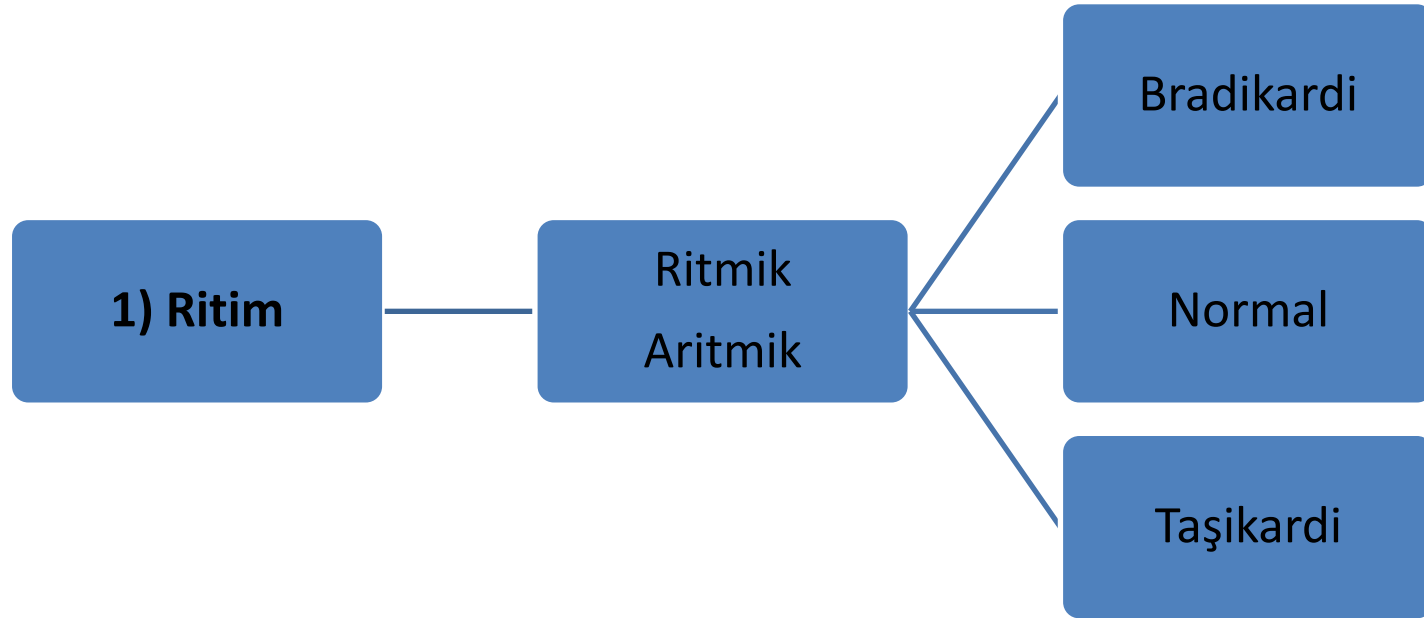


**DI > DII > DIII**

# Sağ aks deviasyonu



**DII > DII > DI**



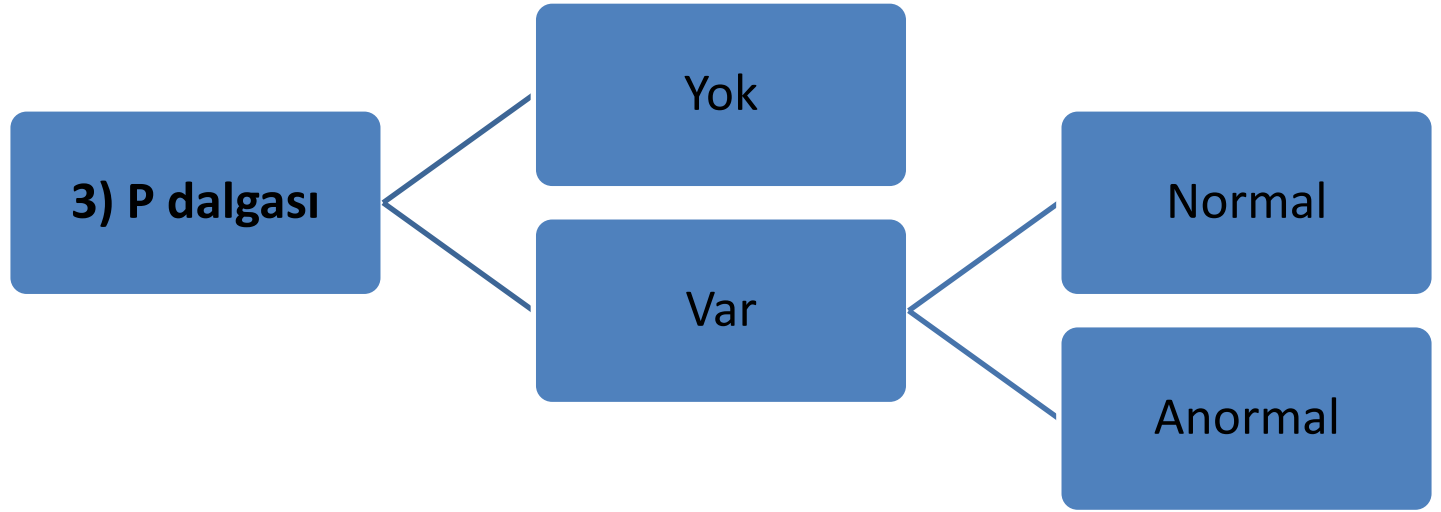
## 2) Kardiyak Aksın Yönü

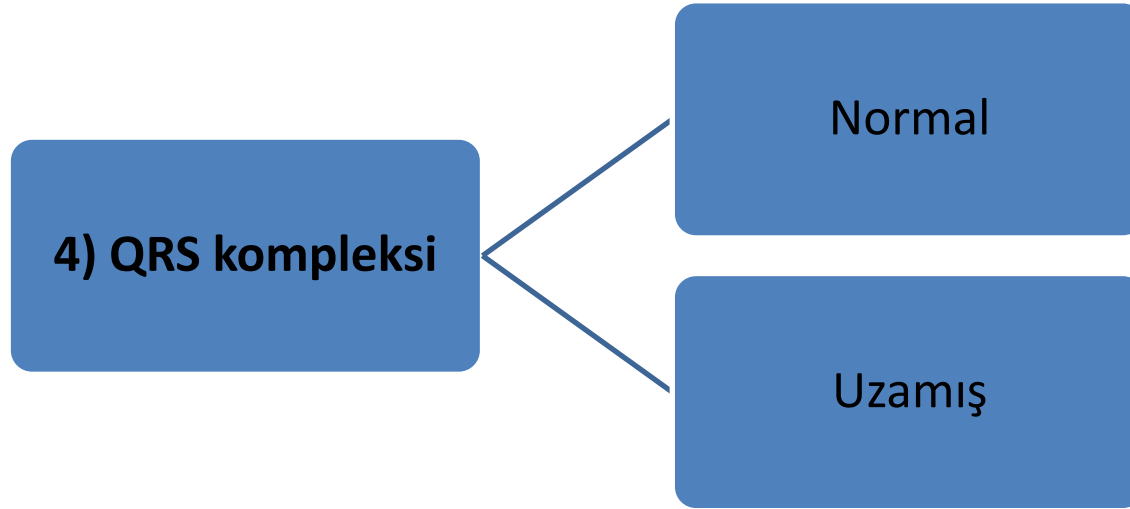
Sağa

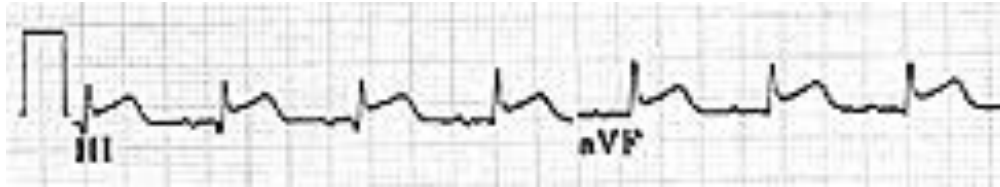
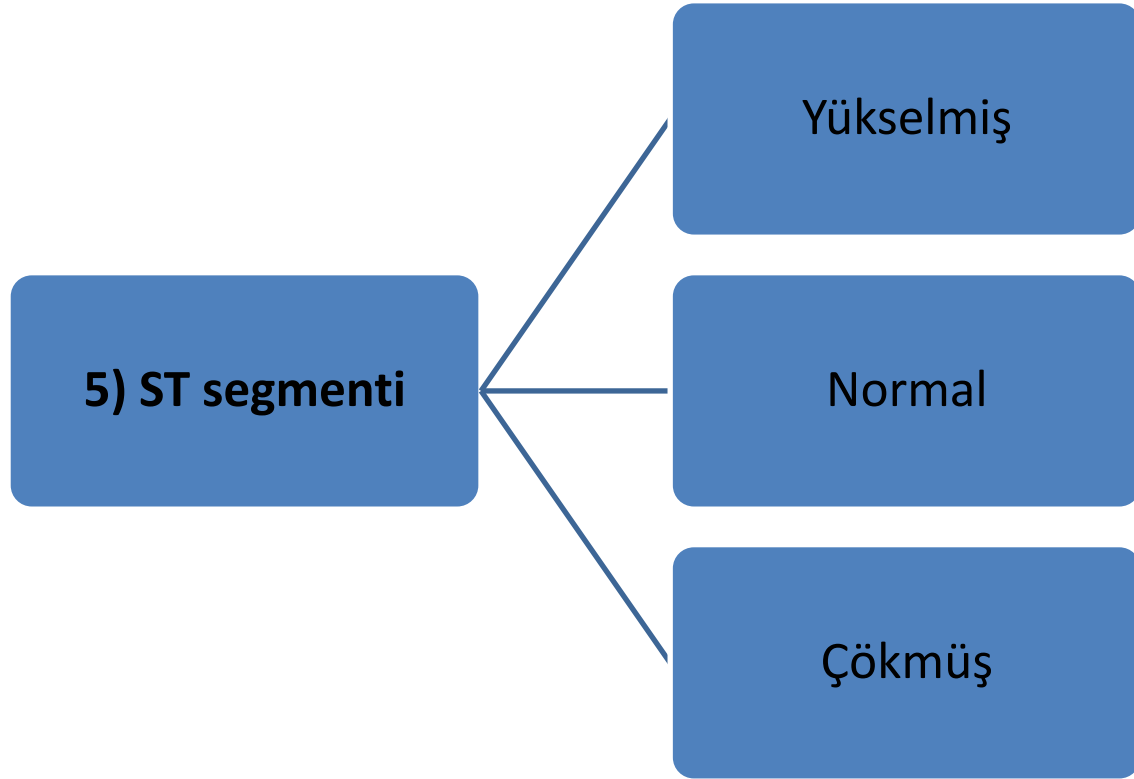
Normal

Sola

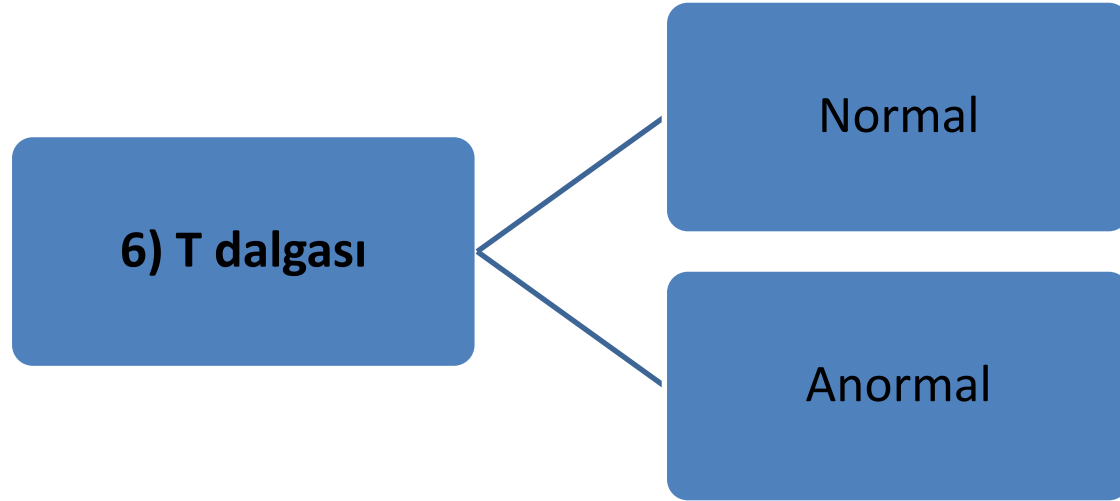


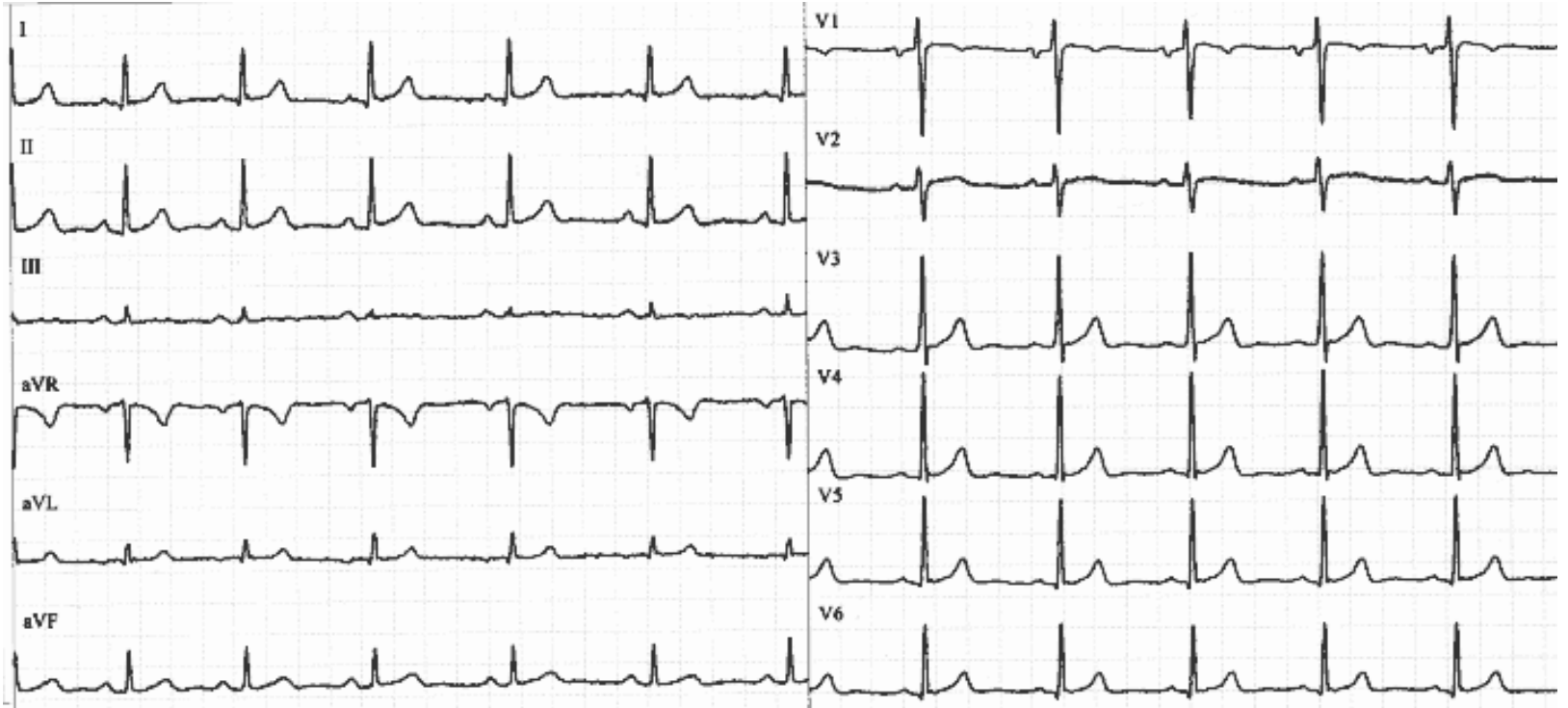




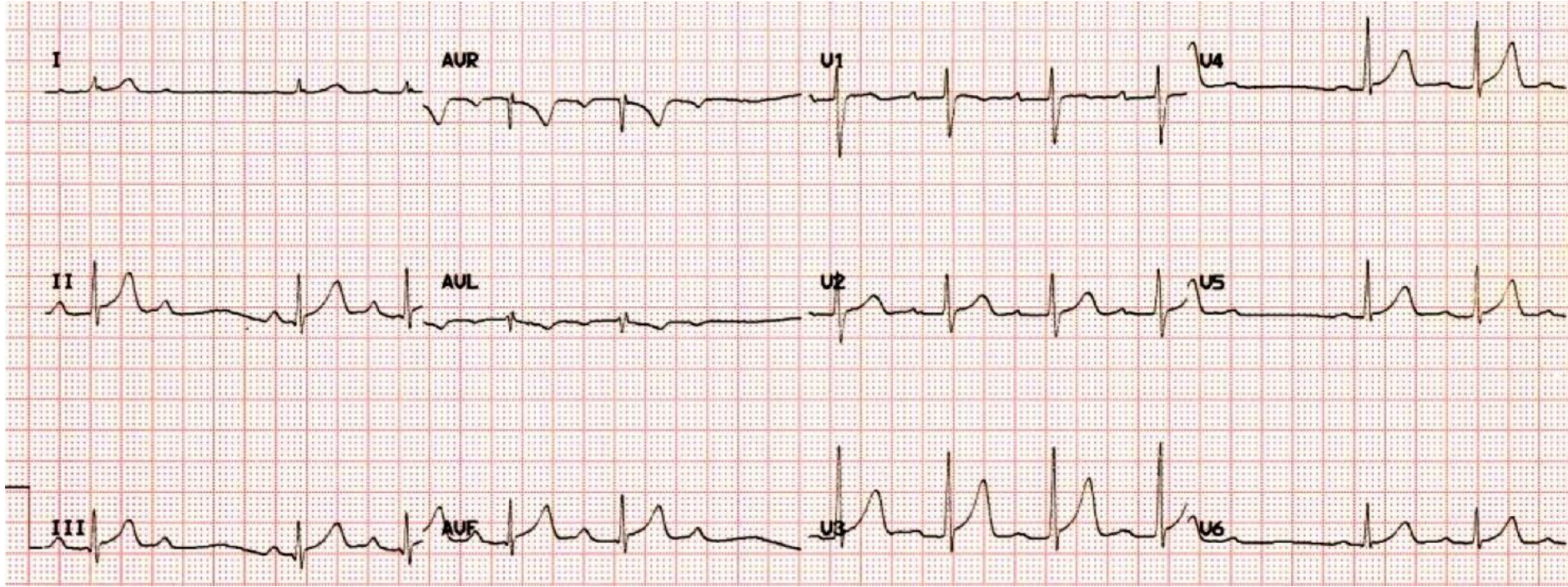






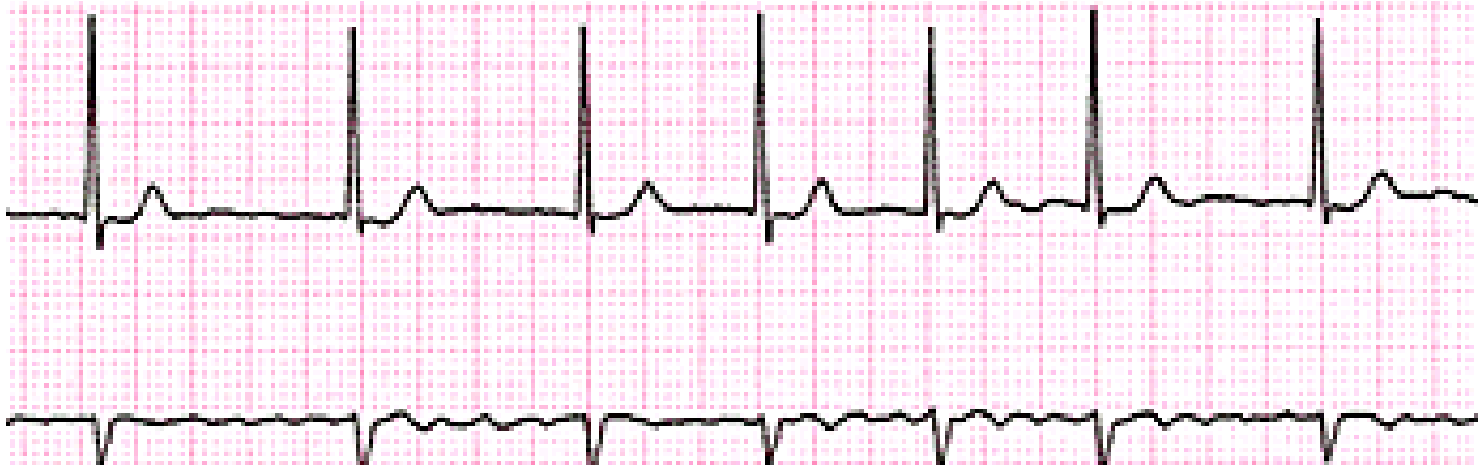


- Ritim sinüs, düzenli, 75/dk
- Aks normal
- P dalgaları var, normal
- QRS normal
- ST normal
- T dalgası normal

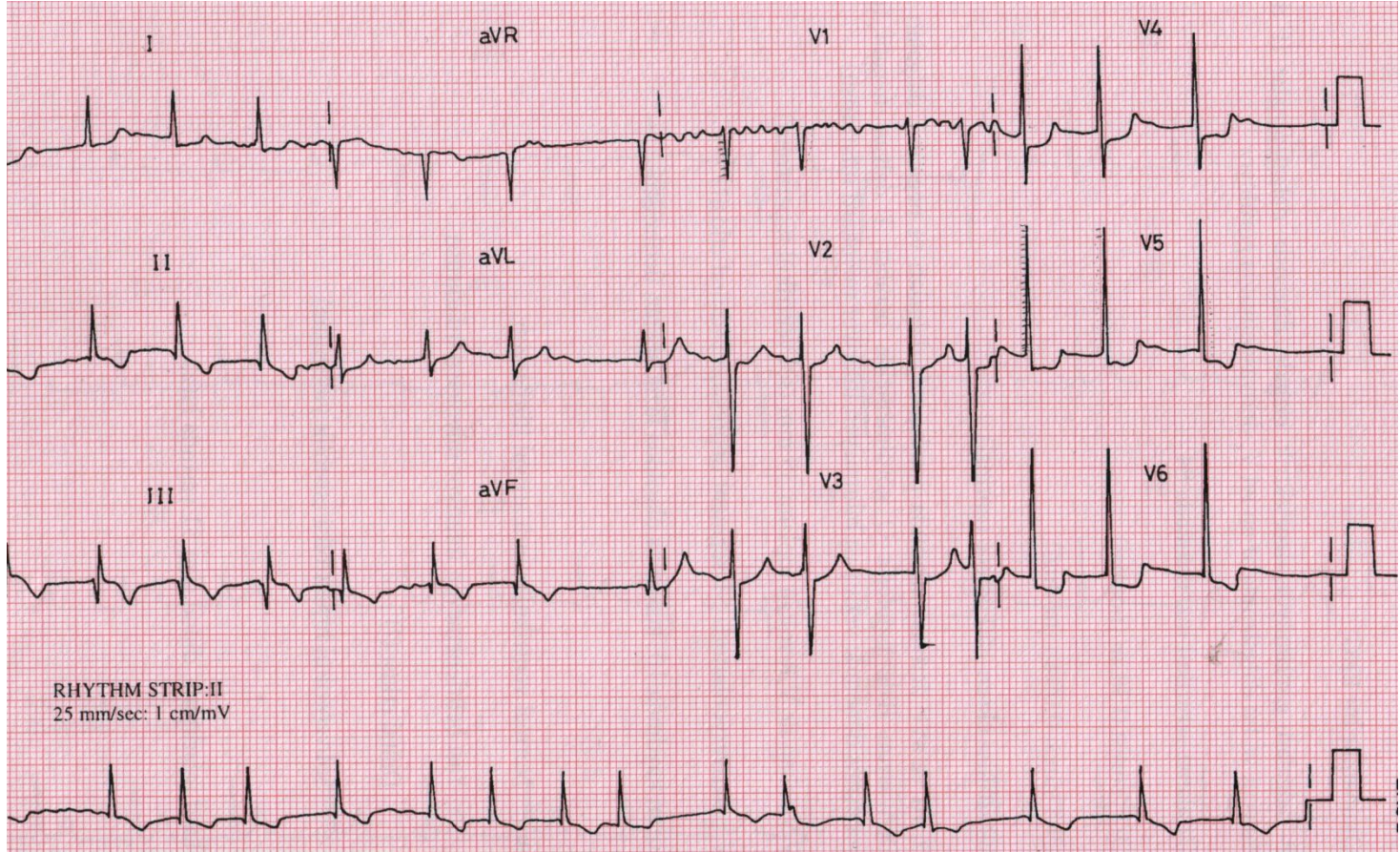


- Ritim sinüs, aritmik, 72/dk
- Aks normal
- P dalgaları var, normal, bazı P dalgalarına QRS cevabı yok
- QRS normal
- ST normal
- T dalgası DII, V3, V4'de sivri

# Atrial fibrilasyon



# Atrial fibrilasyon, iskemi



# Ventriküler taşikardi

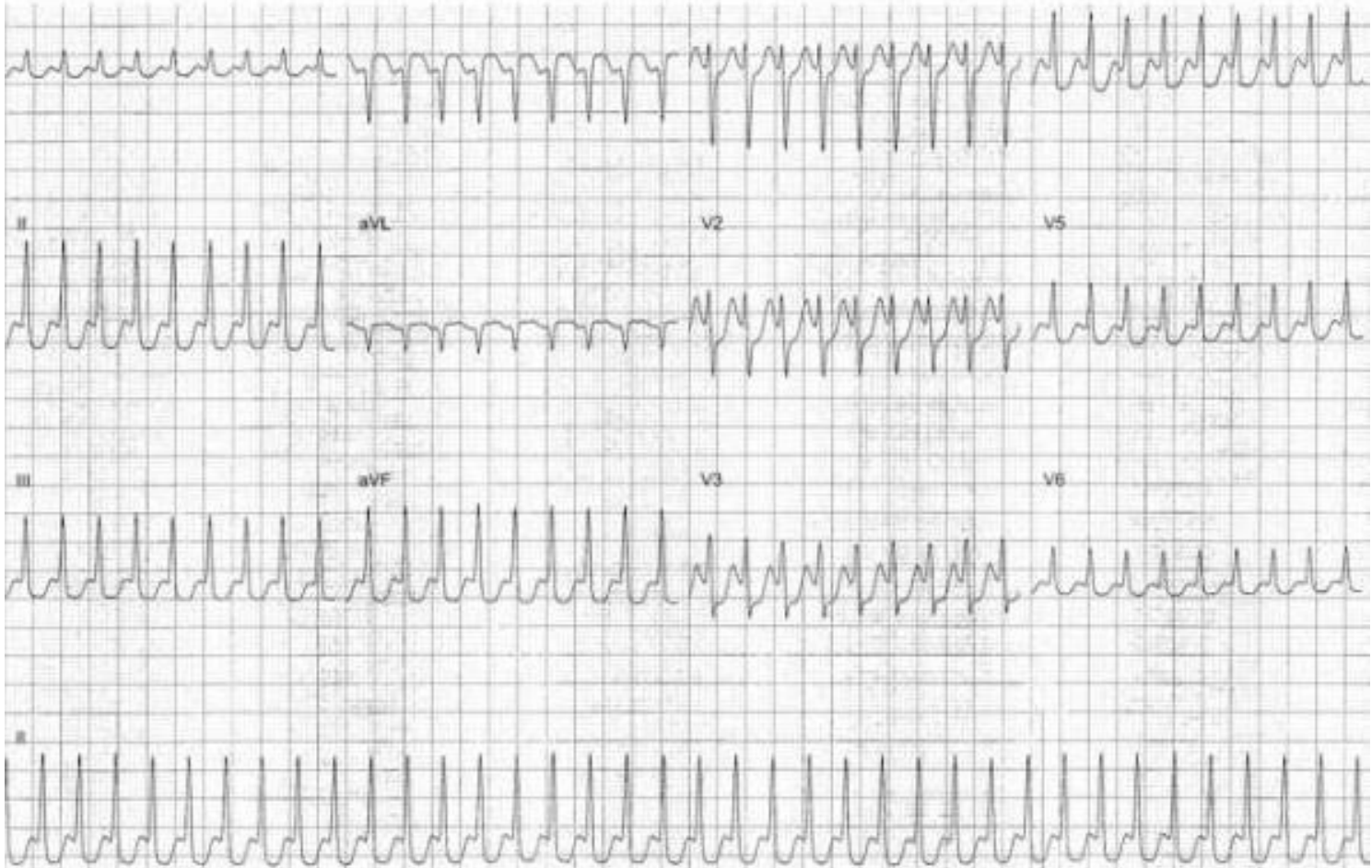


Supraventriküler ritimler → QRS normal  
Ventriküler ritimler → QRS geniş

# Geçici VT



# SVT, İskemi



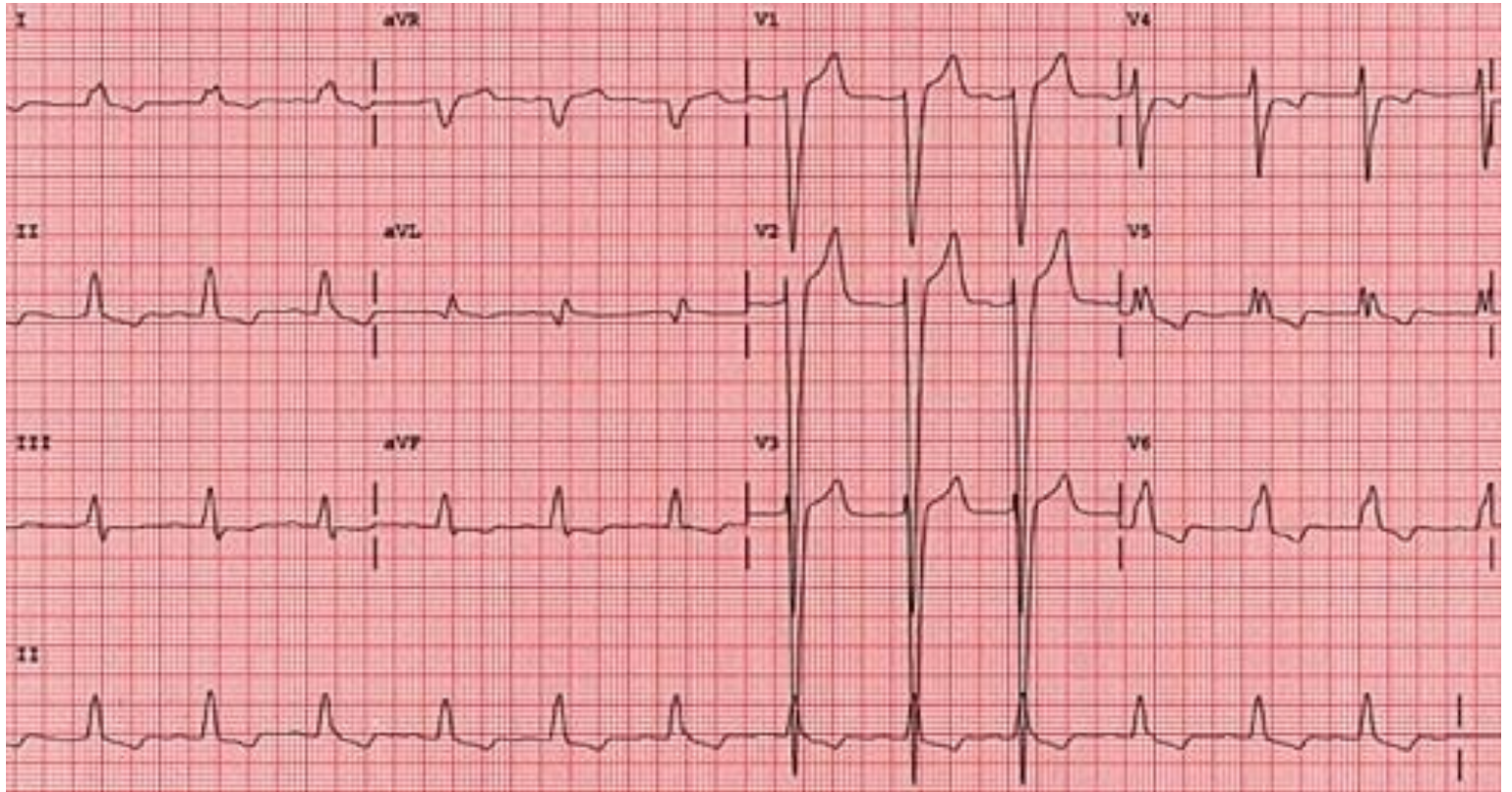
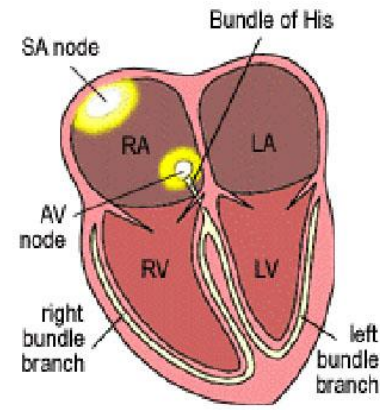


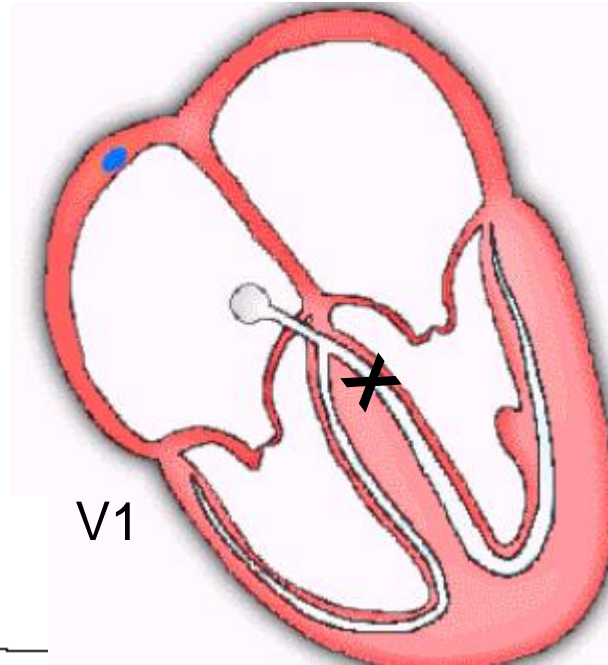
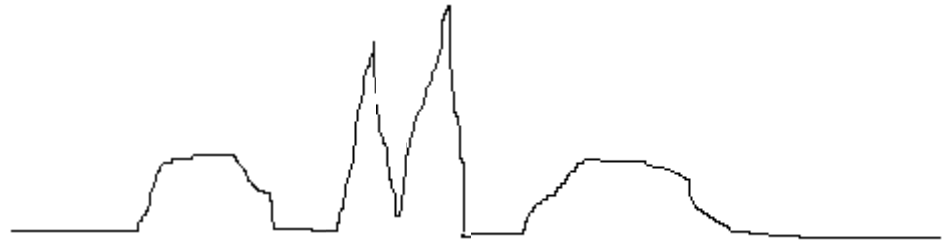
# Ventriküler fibrilasyon



# Sol dal bloğu

- QRS geniş,
- V5 ve V6'da M paterni

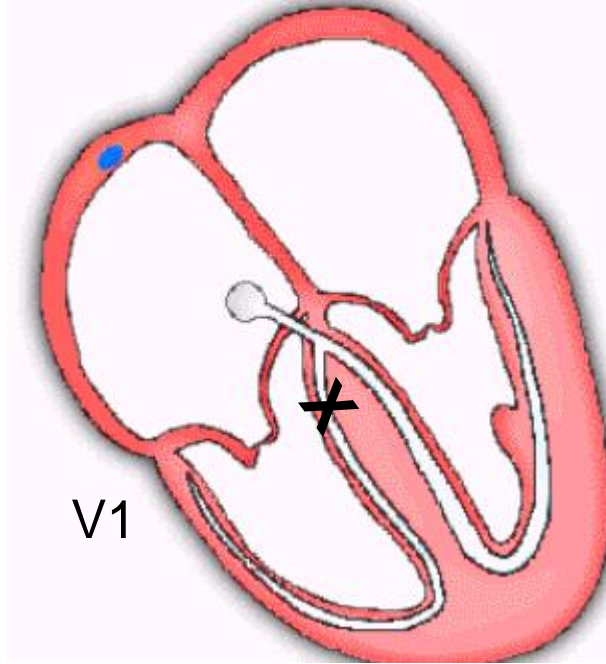




V6

V1

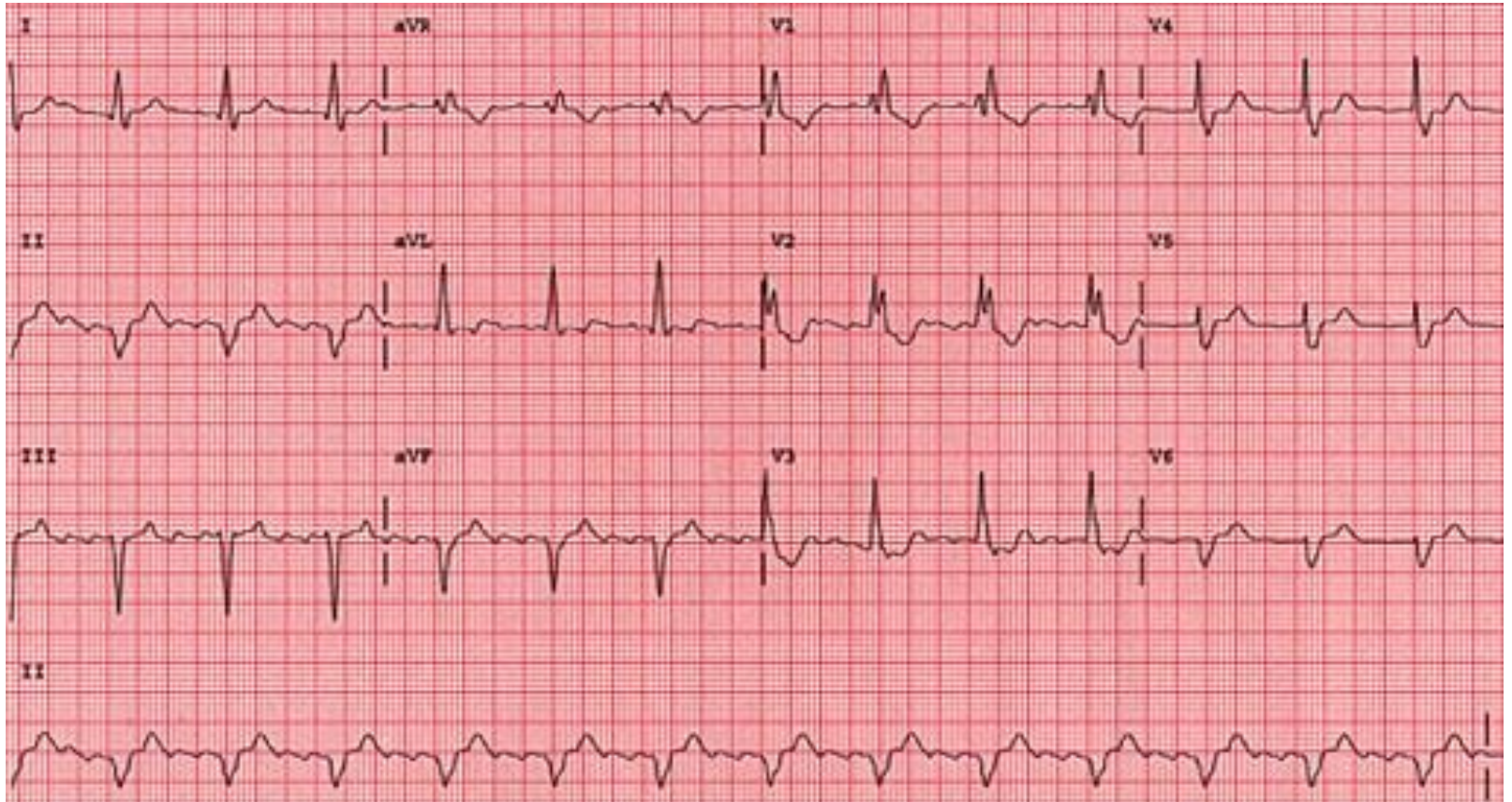
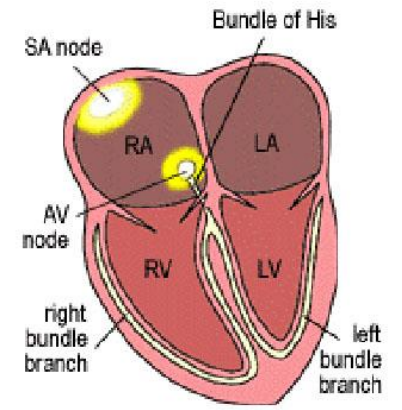




V1

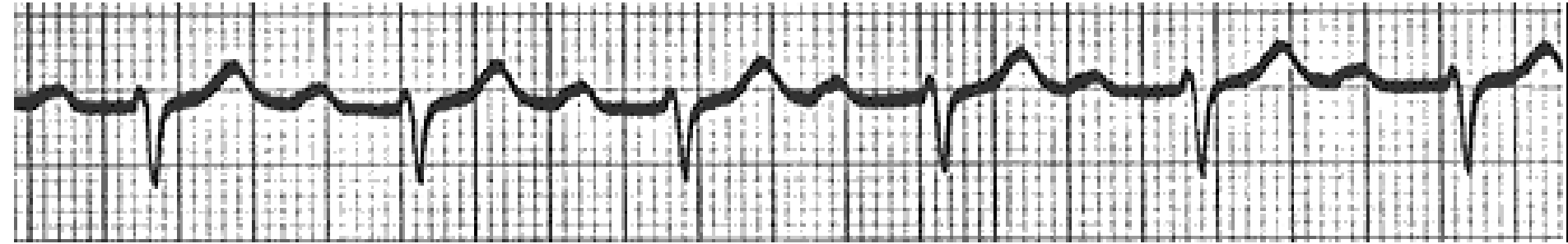
# Sağ dal bloğu

- QRS geniş, V1'de rSR'



# 1. Derece AV blok

- $PR > 0.20$  sn. Bütün P uyarıları ventriküllere geçer.



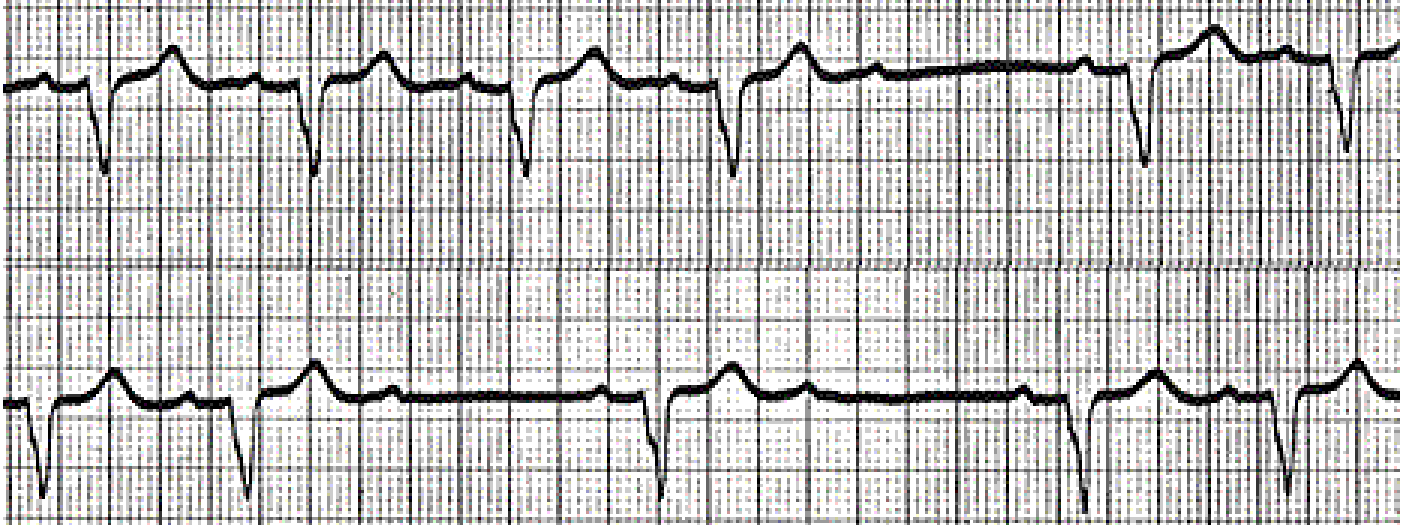
## II. Derece AV Blok (Wenckebach)

1) PR aralığı giderek uzar, QRS kaybı olur



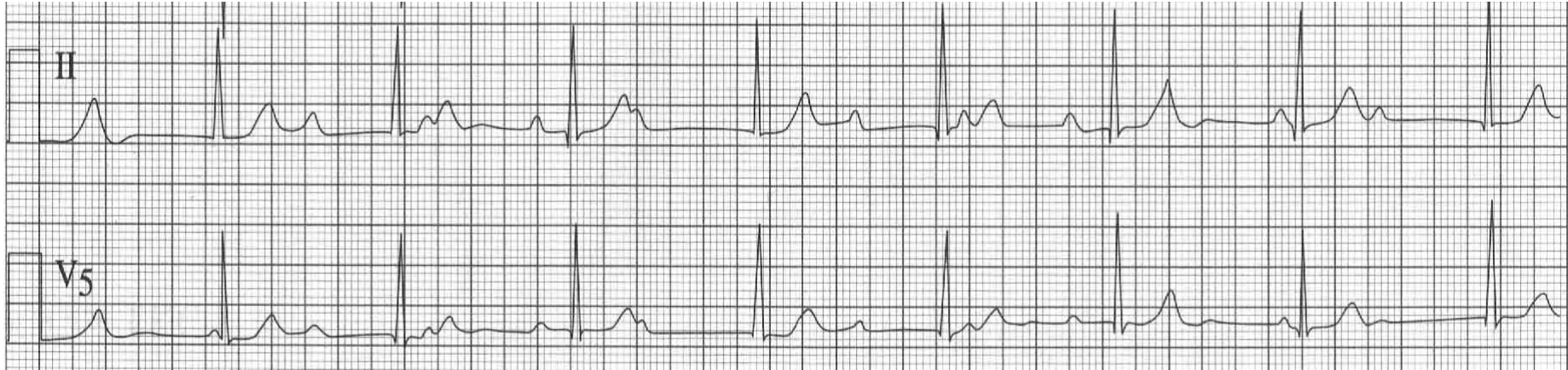
## II. Derece AV blok (Mobitz II)

- PR aralığı sabit, uyarı ventriküllere normal iletilmektedir
- Fakat zaman zaman bir uyarı ventriküllere geçemez

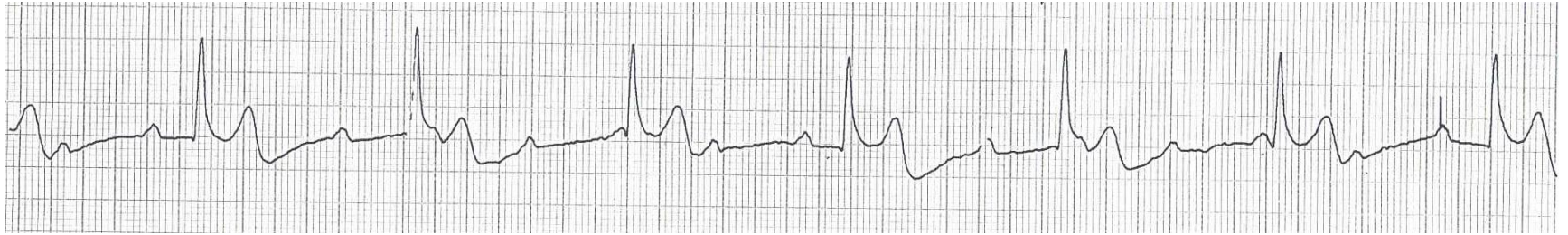




# Tam A-V blok



# Tam A-V Blok

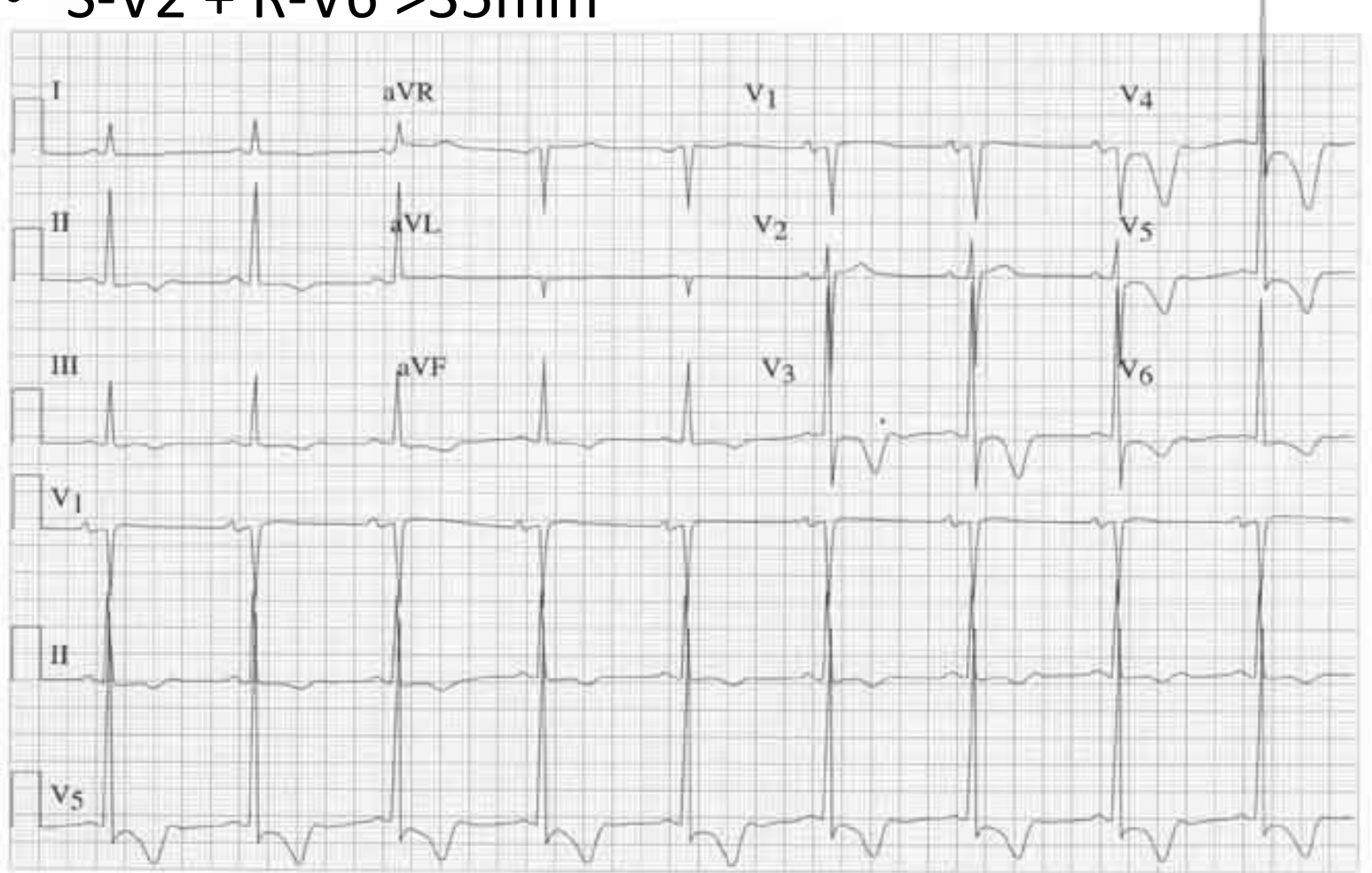


# 1. Derece AV Blok

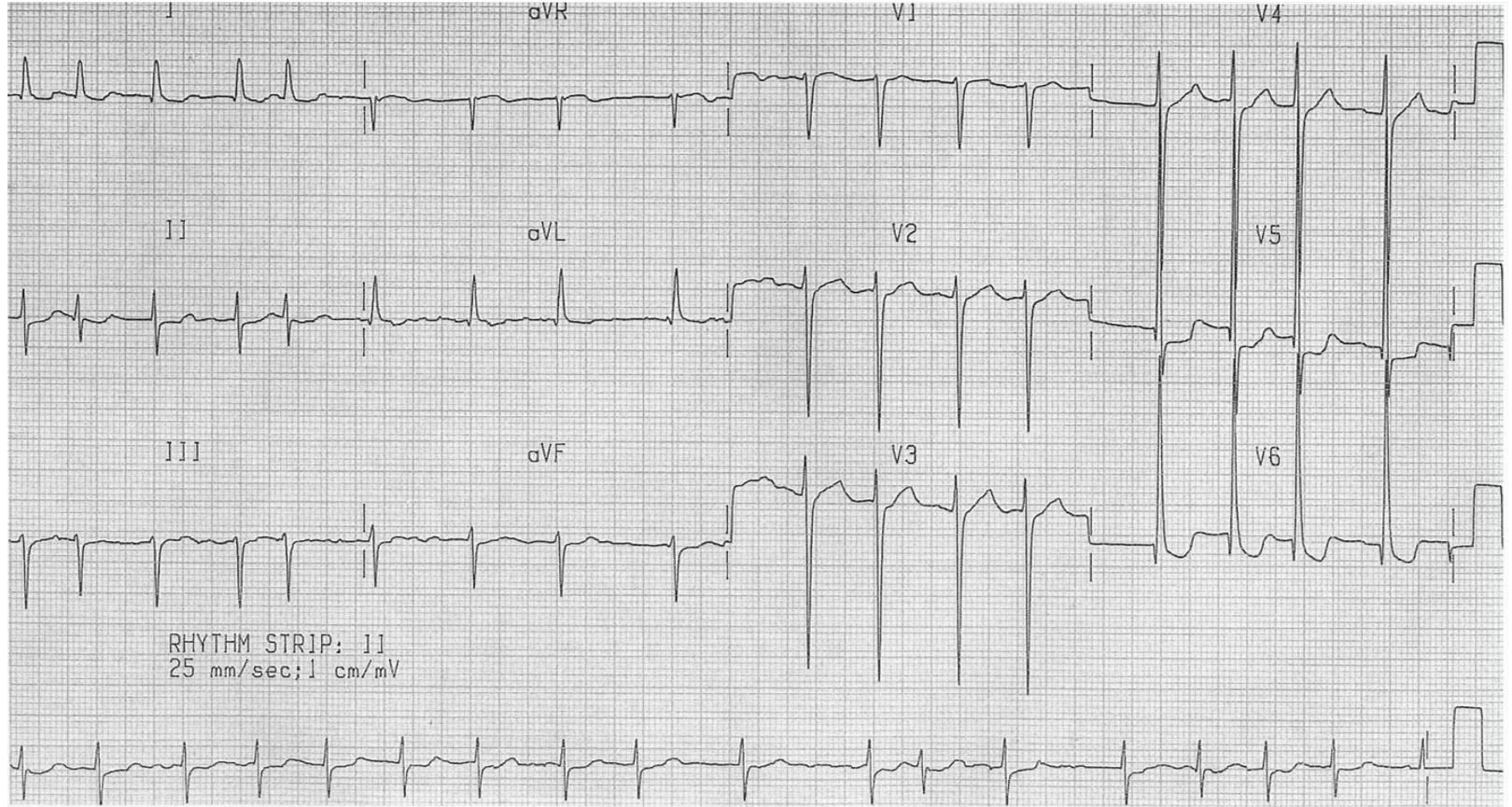


# Sol ventrikül hipertrofisi

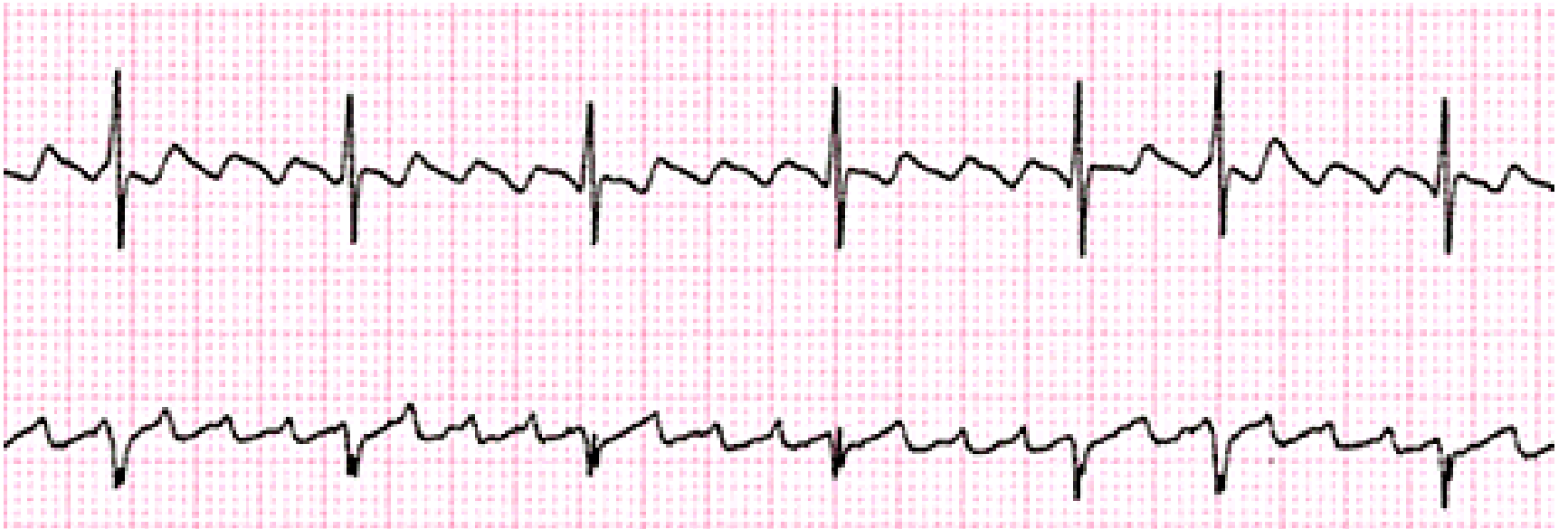
- $S-V2 + R-V6 > 35\text{mm}$



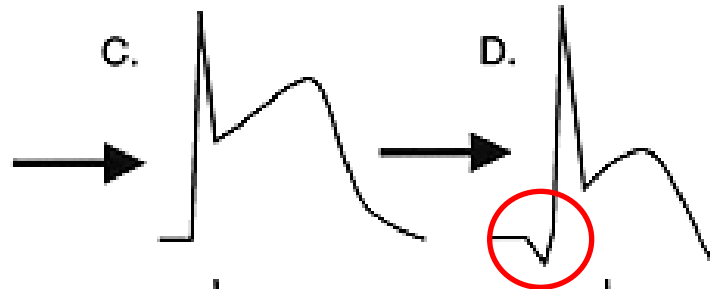
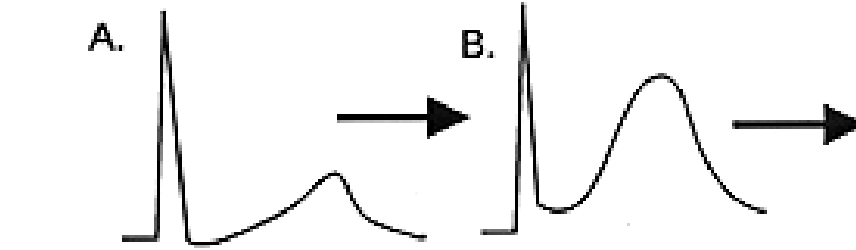
# Atrial fibrilasyon, LVH



# Atrial flutter

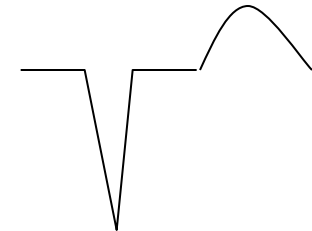
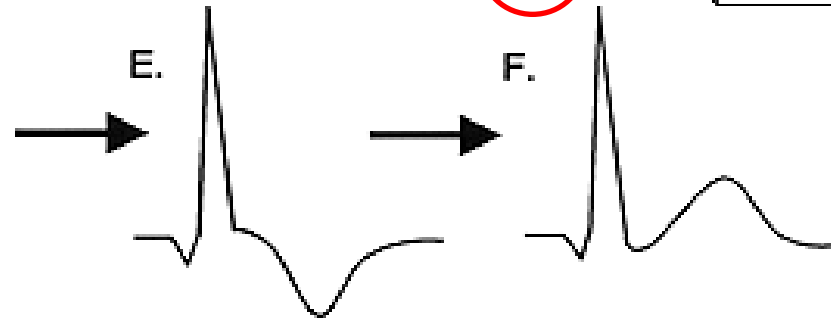


# MI

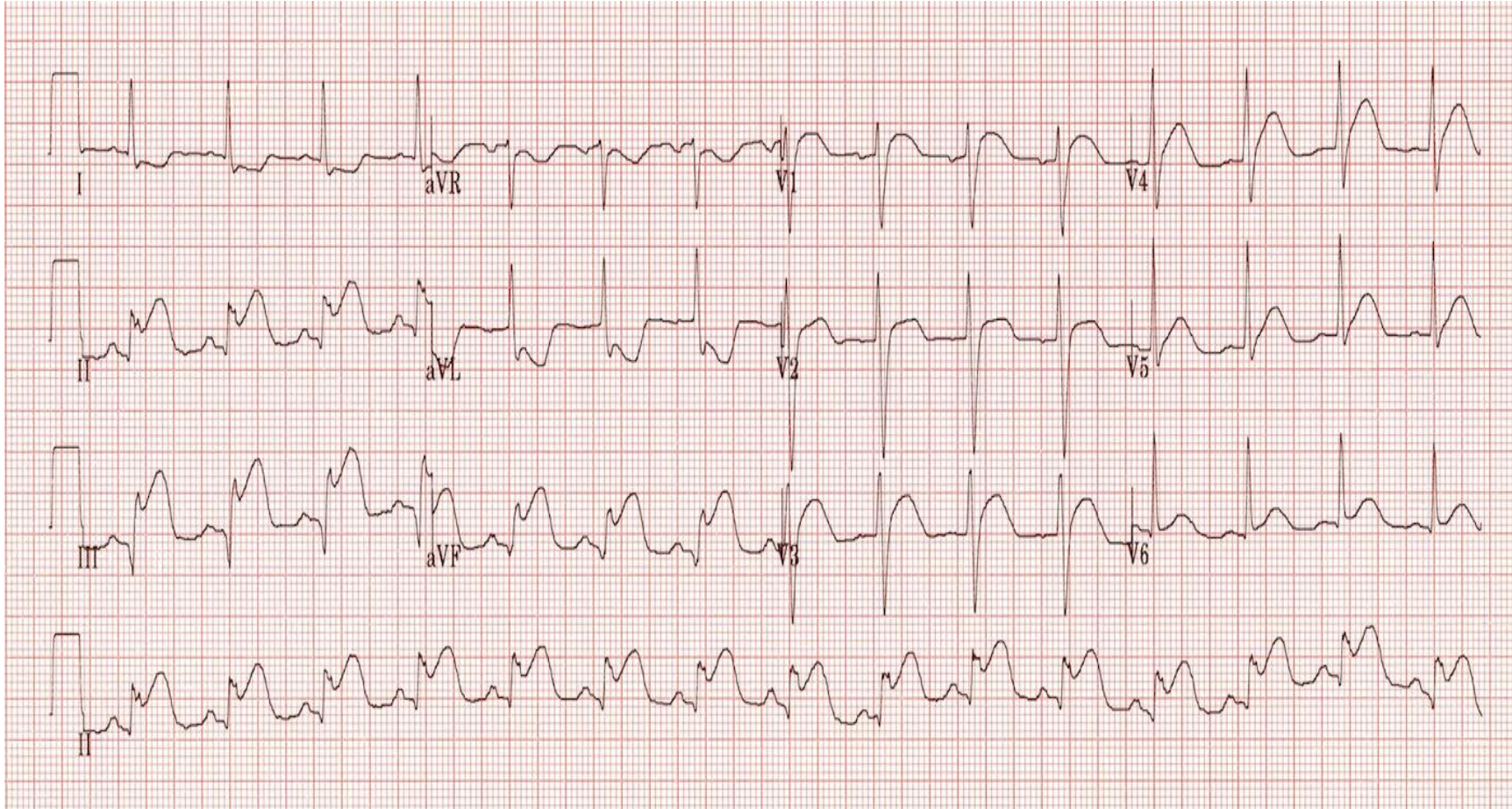


## Q dalgası:

- Normalde V5, V6'da septal
- Geniřliđi 0,04 sn
- Derinliđi 2 mm

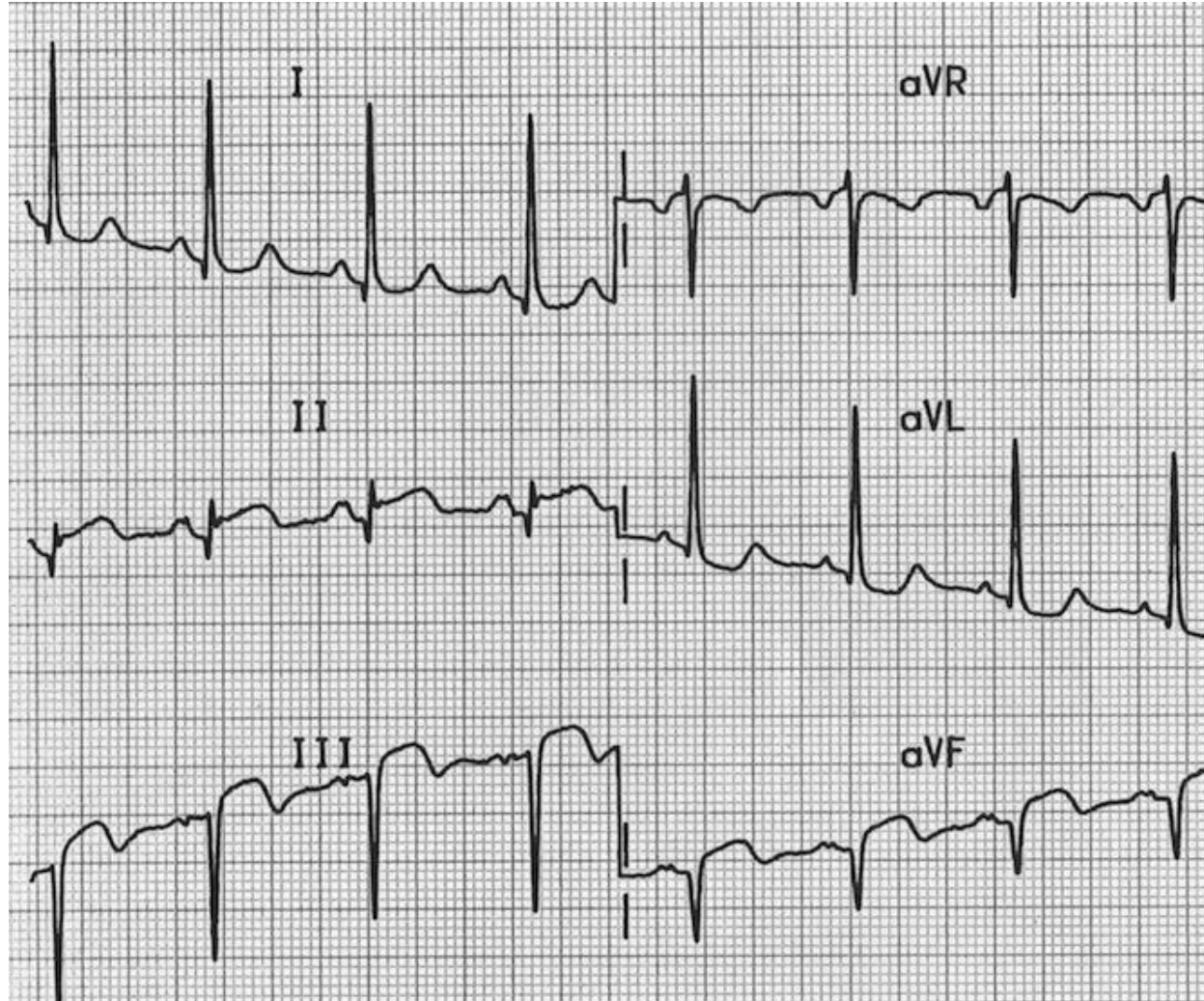


# Akut inferior MI





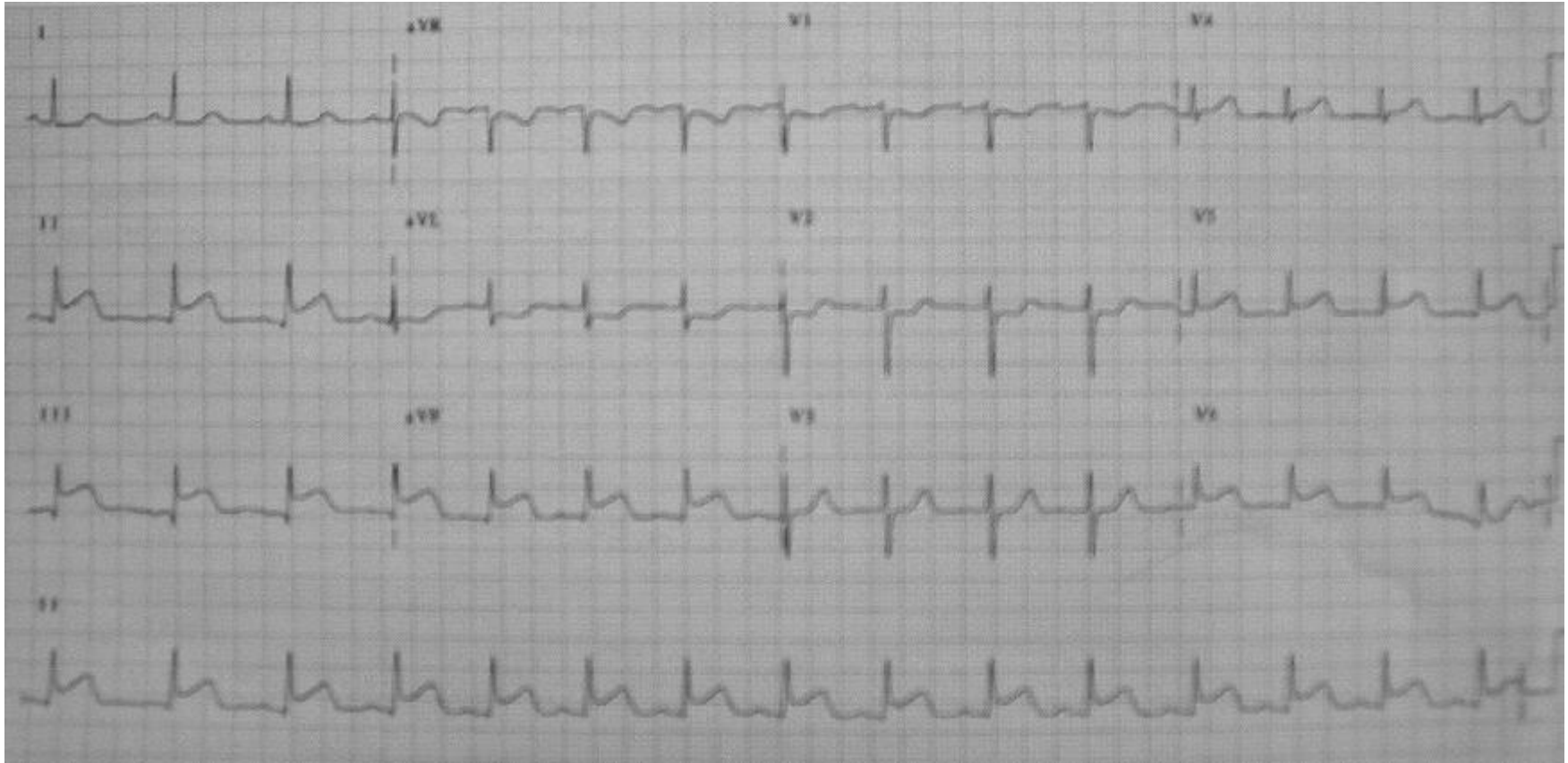
# inferior MI



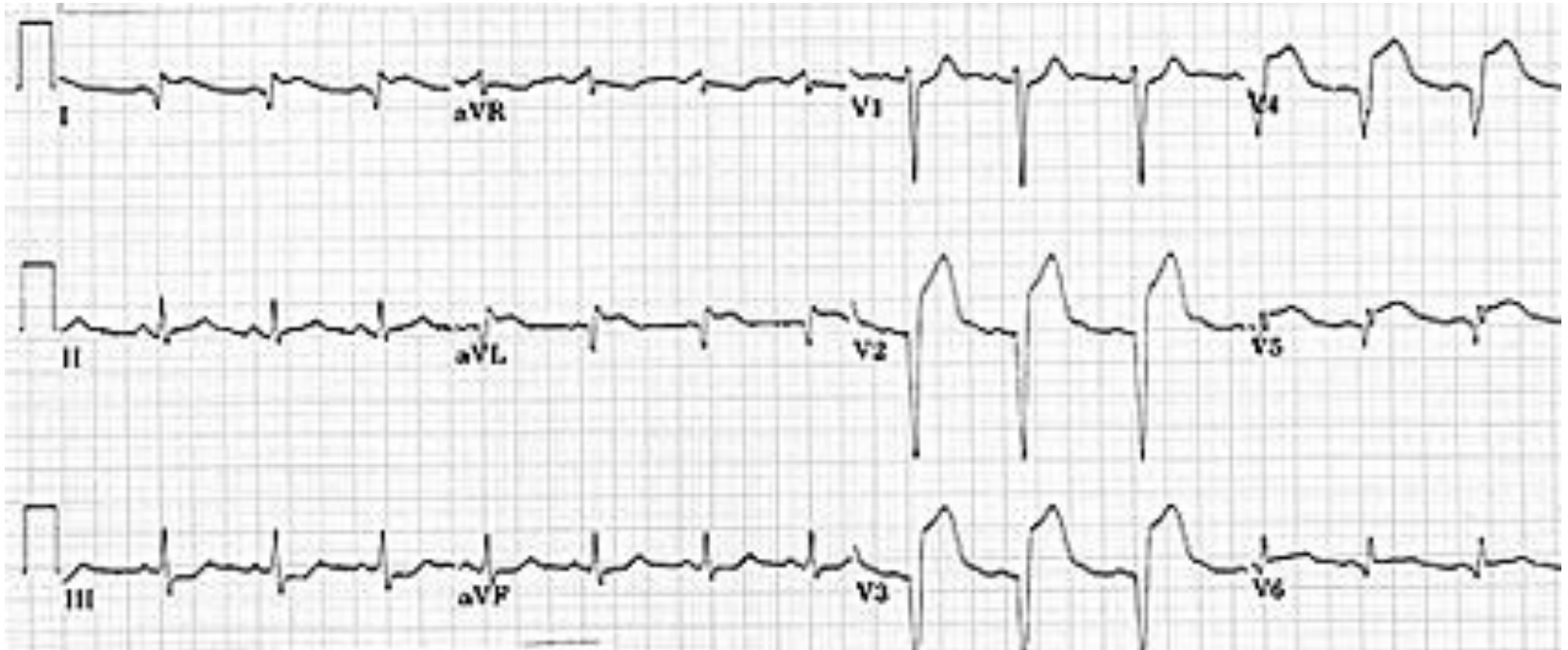
Kaynak : [lifeinthefastlane.com](http://lifeinthefastlane.com) – ECG library



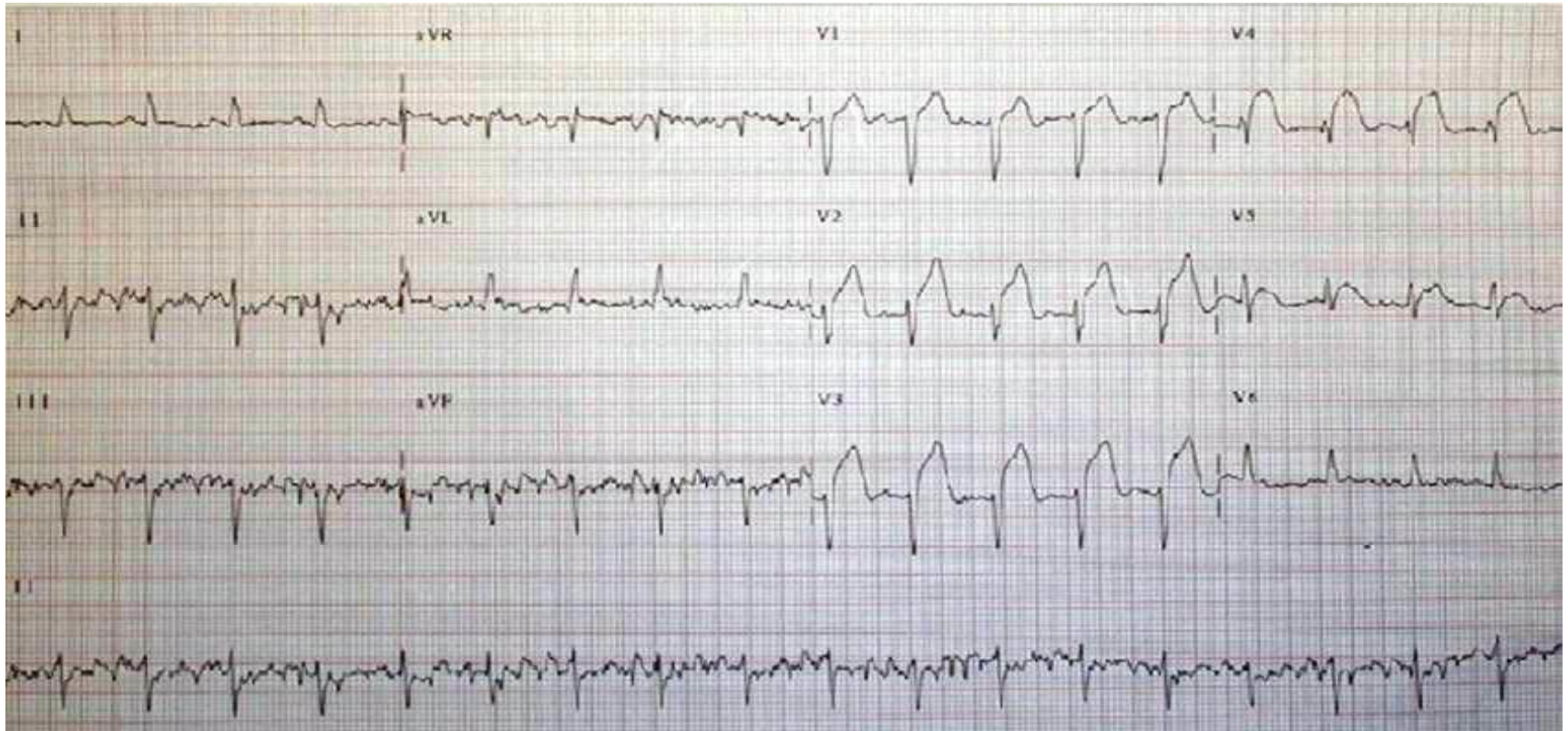
# inferolateral MI



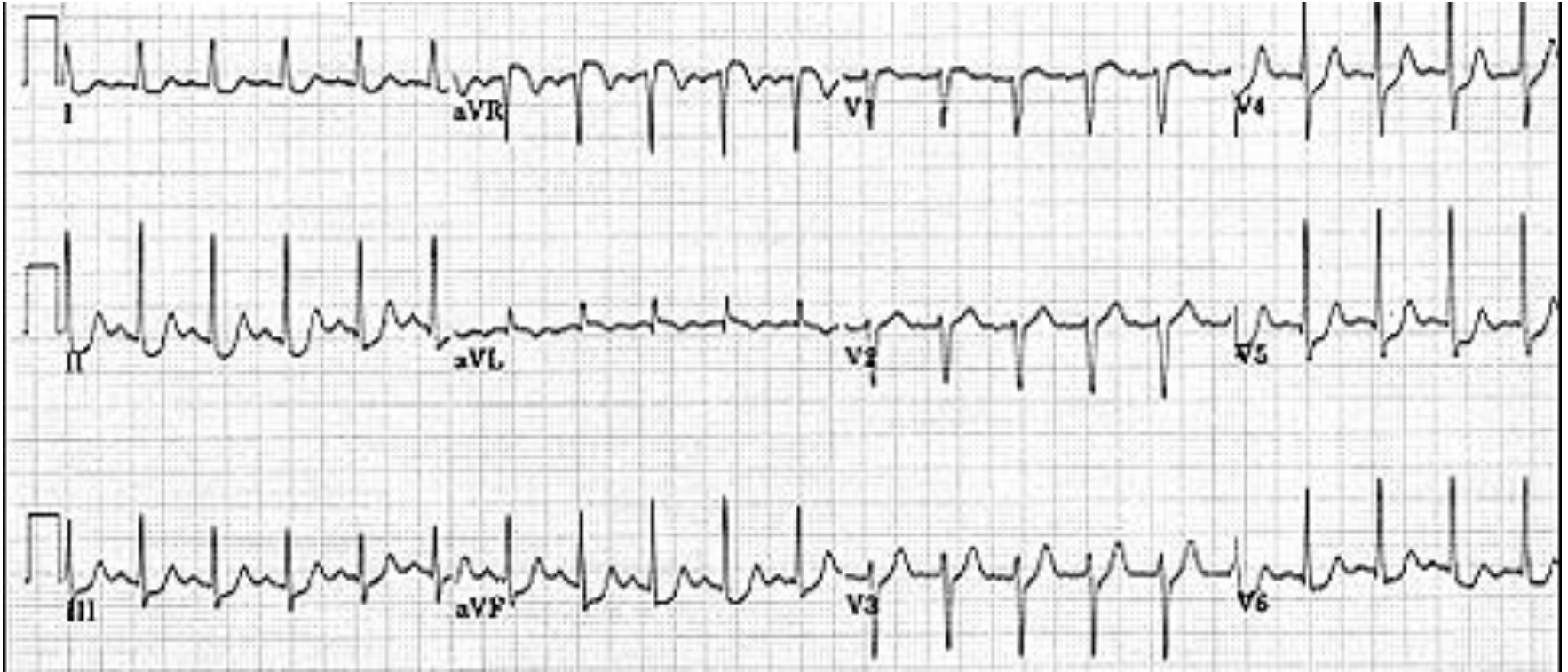
# Anterior MI



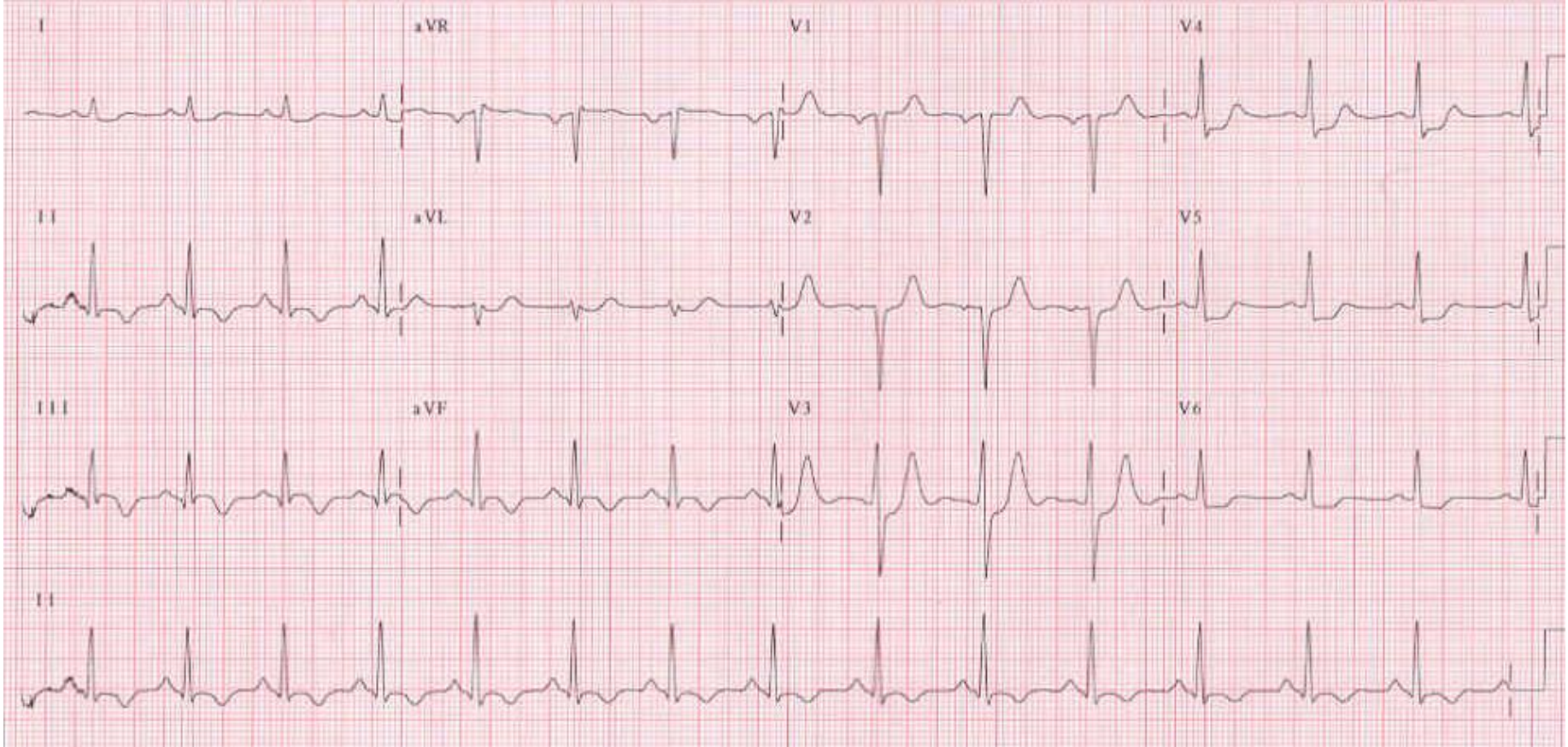
# Akut anteroseptal MI



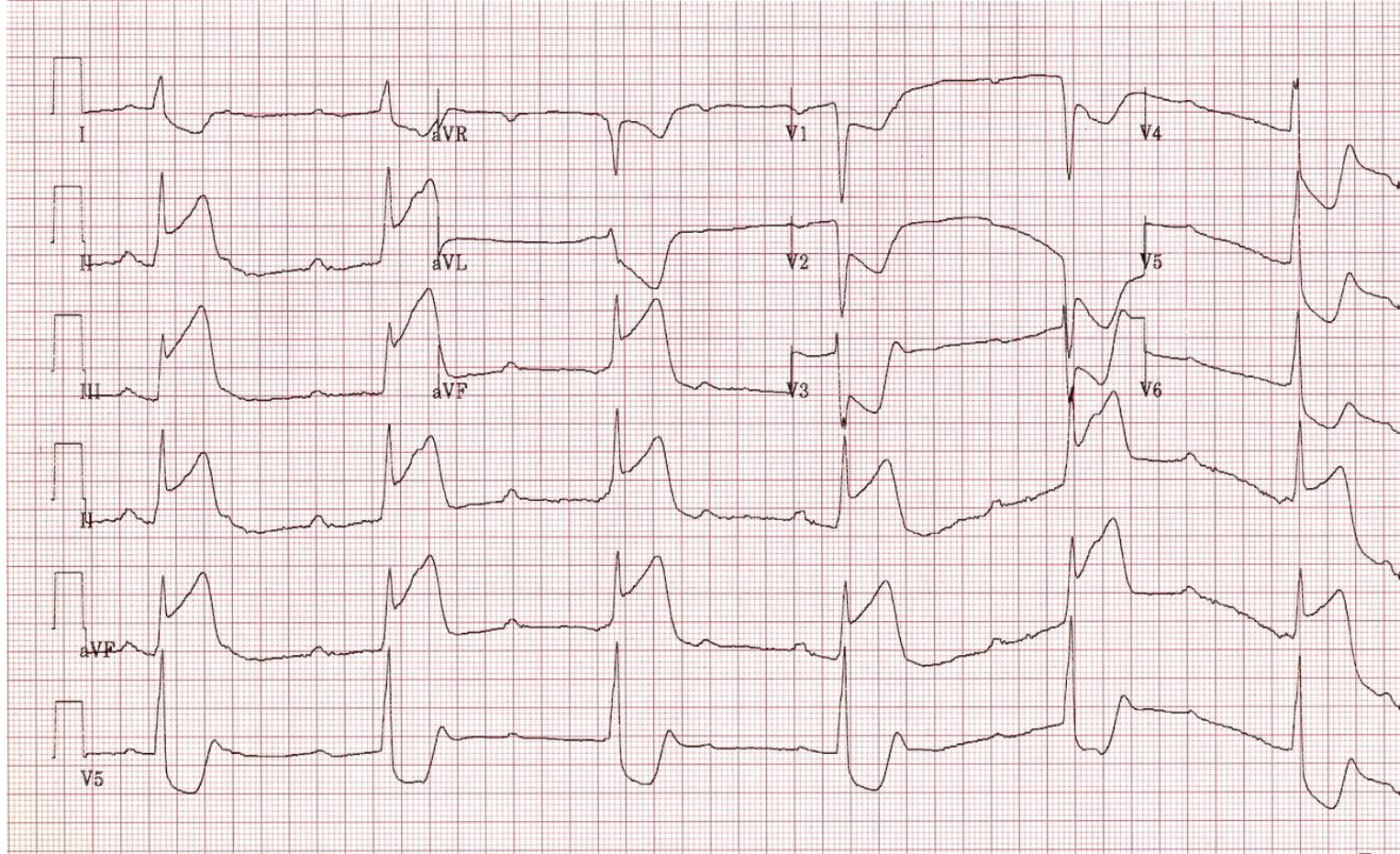
# İskemi, SVT



# inferolateral iskemi



# Akut inferior MI, A-V tam blok



Kaynak : [lifeinthefastlane.com](http://lifeinthefastlane.com) – ECG library

# ÖZET





# 1. Akut Q-dalgalı MI da hangi EKG bulgusu önce oluşur?

- A. Q dalgası
- B. Hiperakut T dalgası
- C. T dalga inversiyonu
- D. ST segment elevasyonu



## 2. Normal septal Q dalgası ile patolojik Q dalgasını ayırmada hangisi yardımcı olabilir?

- A. Genişlik
- B. Yükseklik
- C. Genişlik ve yükseklik
- D. QRS genişliği

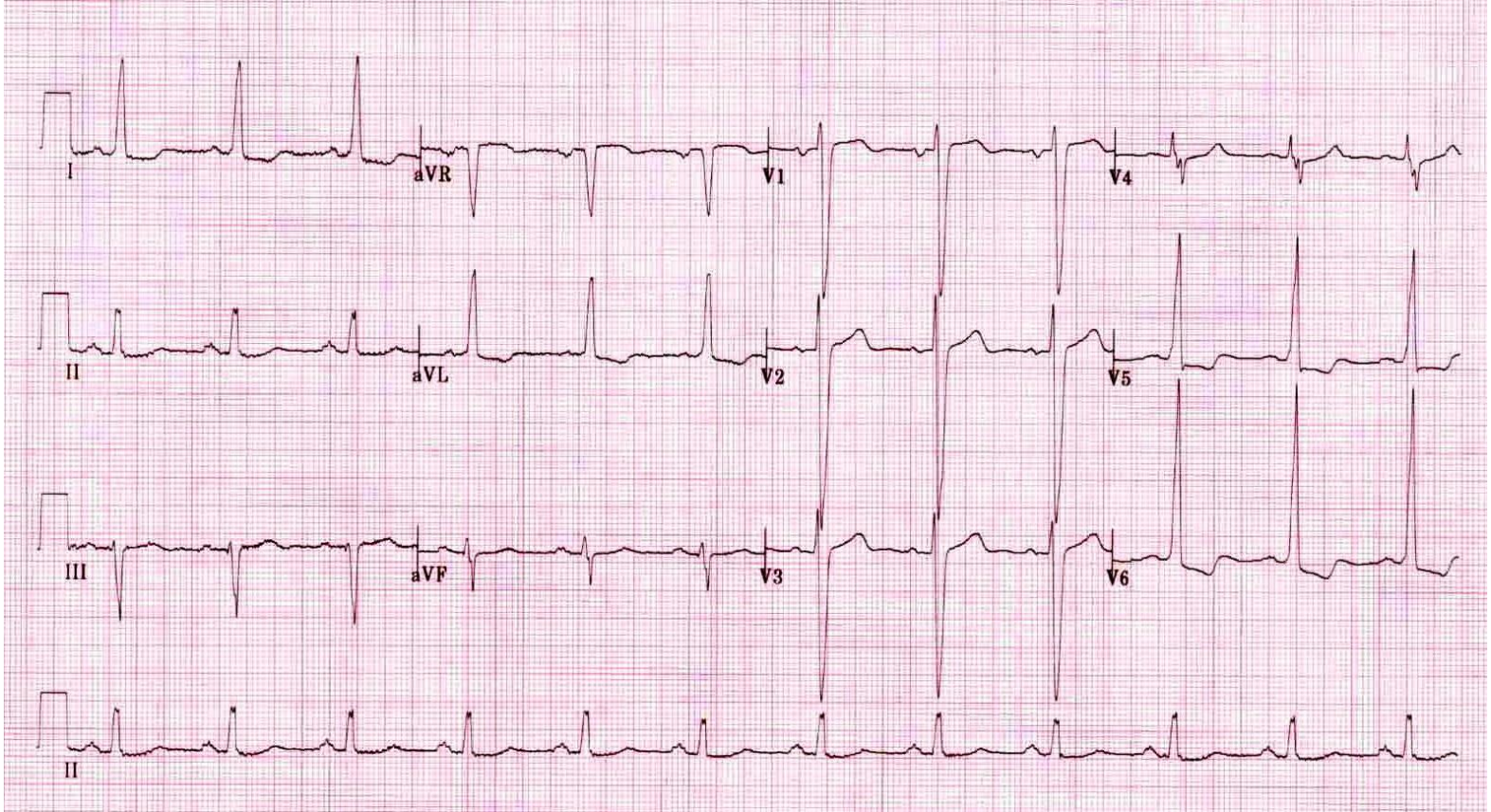


### 3. EKG ile ilgili aşağıdakilerden hangisi doğrudur?

- A. Ekstremitte derivasyonları kalbi horizontal planda görür
- B. PR mesafesi normalde 0.12 - 0.20 sn'dir ve Tam A-V blokta giderek uzar
- C. Birinci derece A-V blokta, P dalgasına zaman zaman QRS cevabı oluşmaz
- D. Ventriküler ritimlerde QRS kompleksi genişlemiştir.

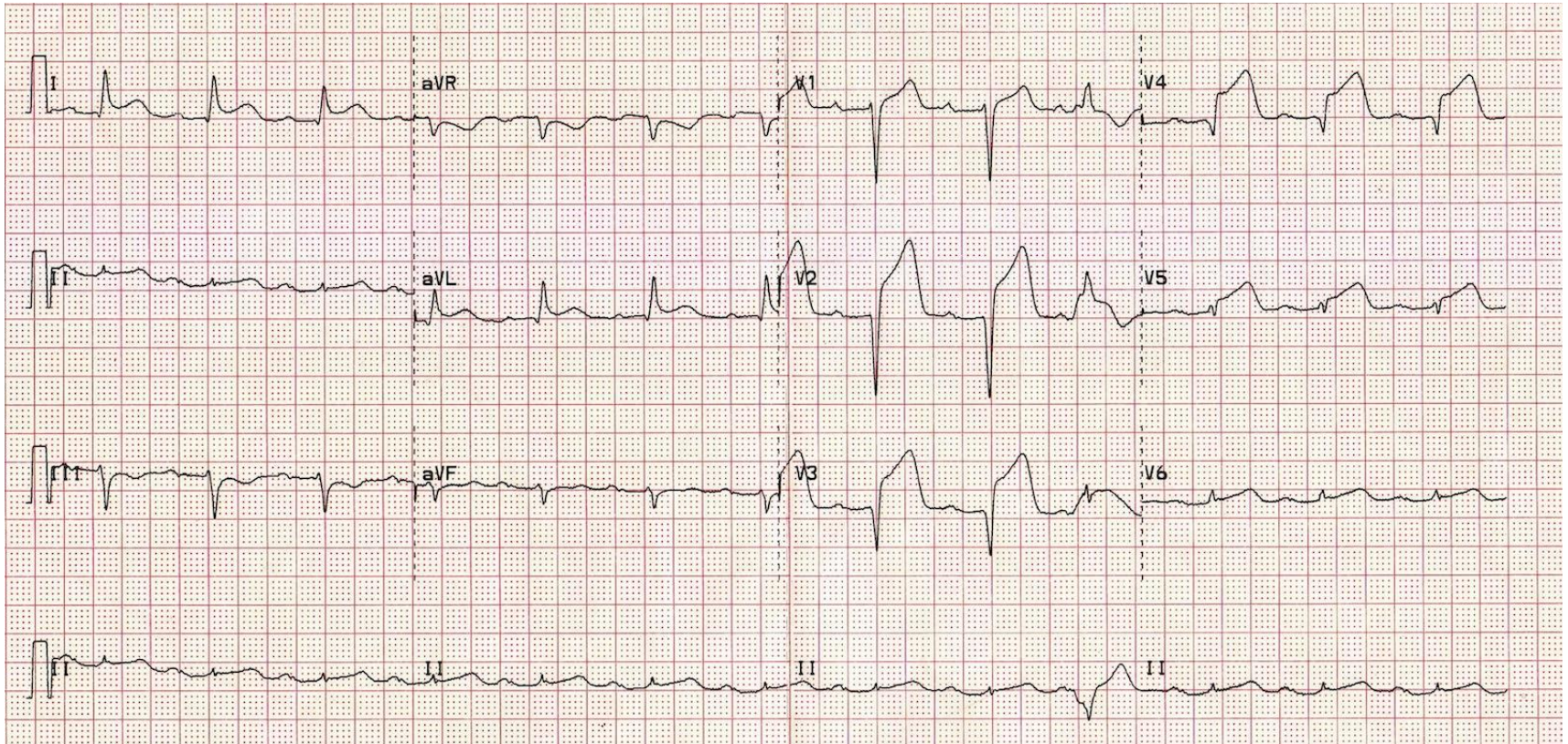


# Sol Ventrikül Hipertrofisi



Kaynak : [lifeinthefastlane.com](http://lifeinthefastlane.com) – ECG library

# Anterior MI



Kaynak : [lifeinthefastlane.com](http://lifeinthefastlane.com) – ECG library

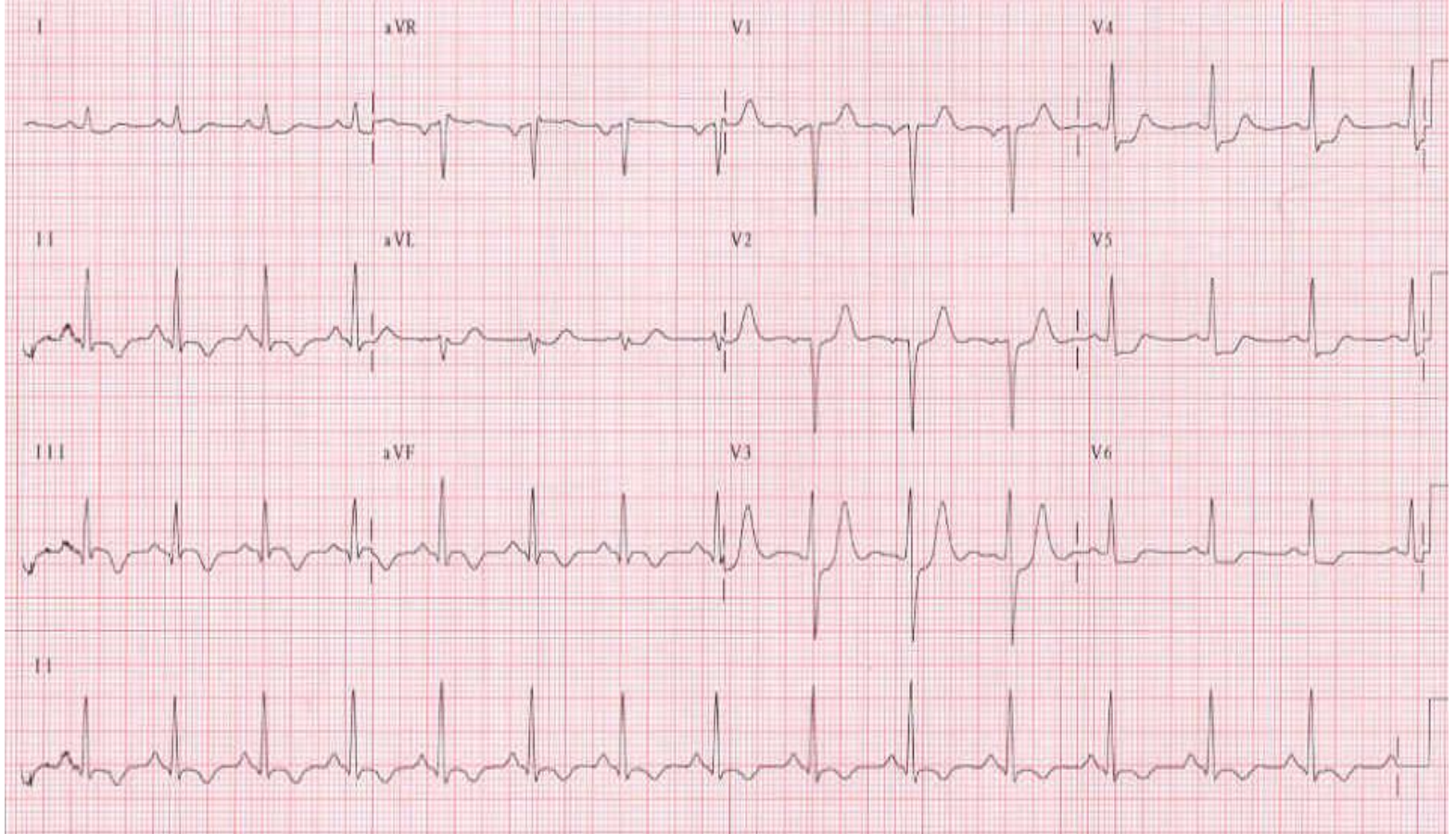


## 6. Hangisi ST segment depresyonuna yol açar?

- A. İskemi
- B. Hiperventilasyon
- C. Ventriküler Hipertrofi
- D. Hipokalemi
- E. Hepsi

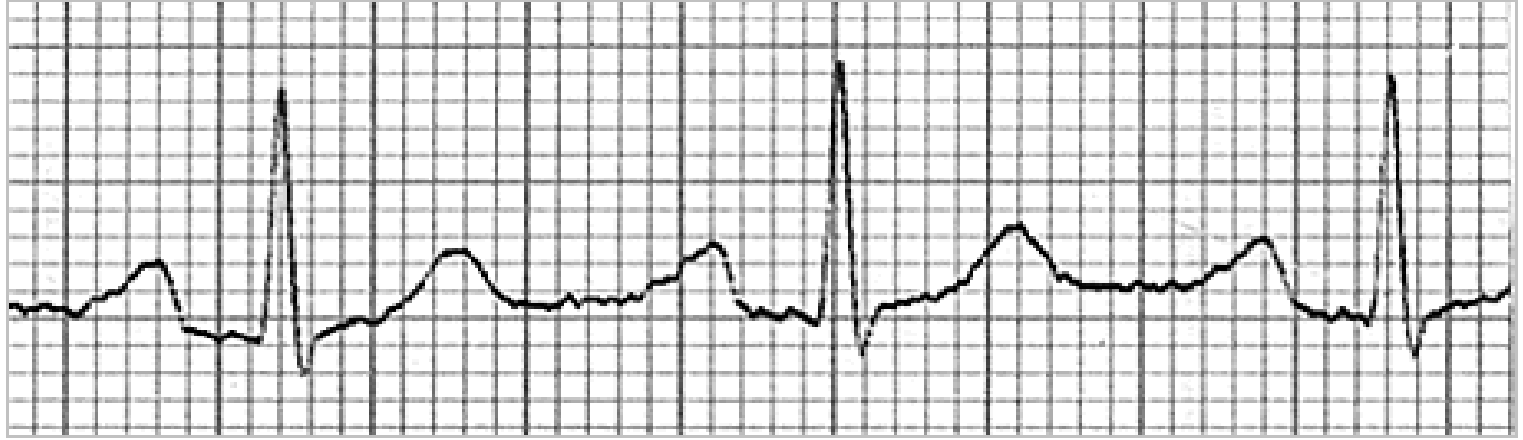


# İnferolateral iskemi



# P-R aralığını ölçelim

- 0.28 sn





# Kaynaklar

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