

# **Validity of ABPM for Diagnosis and control of Hypertension**

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# Ambulatory BP Device

- A portable monitor connected to a standard inflatable cuff using an oscillometric technique.
- Cuff will inflate and deflate at regular intervals over a 24-hour period to measure the BP.
- It is programmed to take readings during the day and sleep times at set intervals;
  - 15–30 minutes during the day....
  - 30–60 minutes at night....



# History of ABPM

The first study, published in 1962, demonstrating the assessment of 24-hour blood pressure without an observer, using a semi-automatic method.....**ABPM**...

Evolution  
of these  
devices  
over time.



1966



1988



2015

# For the first time in 1982, a 24-hour BP recording was presented in the Brazilian Congress of Cardiology.

MONITORIZAÇÃO CONTÍNUA DA PRESSÃO ARTERIAL  
EM INDIVÍDUOS NORMAIS.

**10.08**

Wajngarten, M.; Curiatti, A.J.; Antunes, J.E.; Diamant, J.; Giannini, S.D.; Gruppi, C.J.; Saldanha, R.V.; Pileggi, F.; Serro-Azul, L.G.; Foss, E.A. - INCOR - S. Paulo.

Para verificar o comportamento da pressão arterial nas 24 horas do dia, 24 indivíduos normais com idades de 19 a 35 anos ( $23,8 \pm 4,9$ ) foram submetidos à monitorização com Pressurômetro II modelo 1977, da Del Mar a vionice acoplado a sistema de eletrocardiografia dinâmica (Holter).

As 24 horas foram divididas em três períodos: Manhã (6 às 14 hs) Tarde (14 às 22 hs) e Noite (22 às 6 hs).

Foram determinados médias e desvios padrão para os 24 casos; em cada período e nas 24 h, dos valores médios, máximos e mínimos de pressão sistólica (Ps) pressão diastólica (Pd) e de frequência cardíaca (FC).

Resultados: 1) Os valores médios nas 24 horas foram: Ps =  $120,28 \pm 20,40$ ; Pd =  $76,81 \pm 10,80$  e FC =  $81,90 \pm 17,45$ ;

2) O período da noite apresentou os menores valores médios, máximos e mínimos de Ps, Pd e FC;

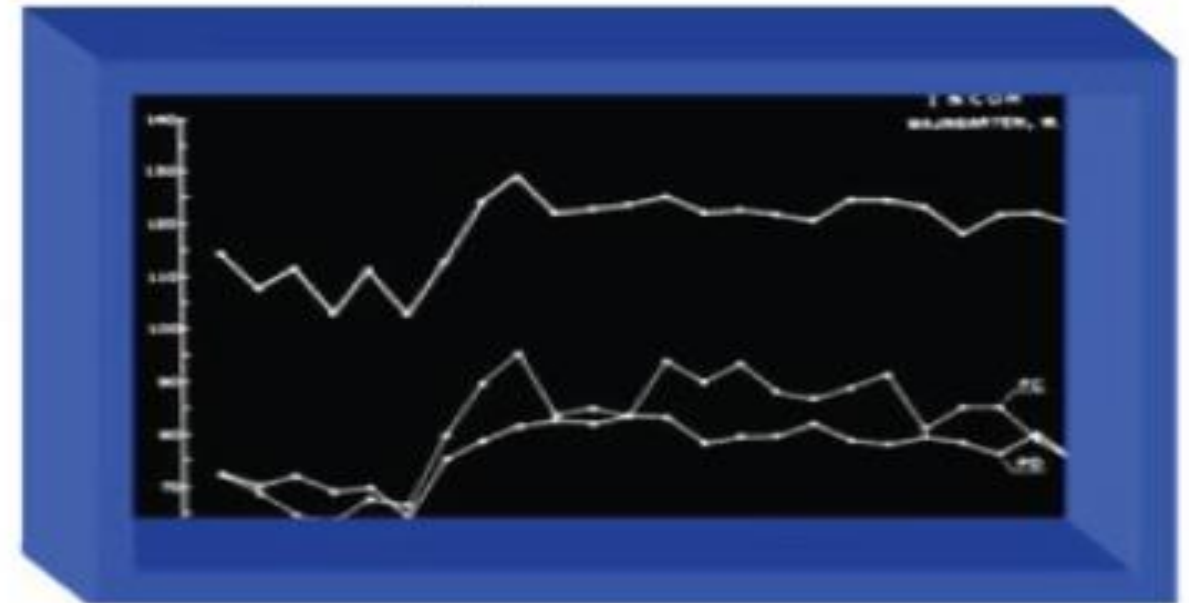
3) Os maiores valores médios de Ps, foram à tarde e de Pd e FC de manhã;

4) Os valores máximos foram maiores à tarde para Ps e Pd e de manhã para FC;

5) Os valores mínimos foram maiores de manhã para Ps e Pd e à tarde para FC.

SUPLEMENTO 1  
OUTUBRO 1982  
VOLUME XXXIX

ARQUIVOS  
BRASILEIROS DE  
CARDIOLOGIA



# What are the indications?

- White-coat hypertension (10-30%).
- Masked hypertension (20%).
- Nocturnal hypertension (Dipping categories).
- Hypertension despite appropriate treatment.
- Patients with a high risk of future cardiovascular events.

# What are the indications?

**Ambulatory BP may be useful for:**

- Refractory hypertension.
- Titrating antihypertensive therapy.
- Borderline hypertension.
- hypertension detected early in pregnancy.
- syncope or suspected orthostatic hypotension.





# Validity of ABPM in Nocturnal Hypertension

- **First described in 1988 where the night time dip has become an accepted measure for cardiovascular risk.**
- **It has been fully examined since the development of ambulatory blood pressure monitoring.**

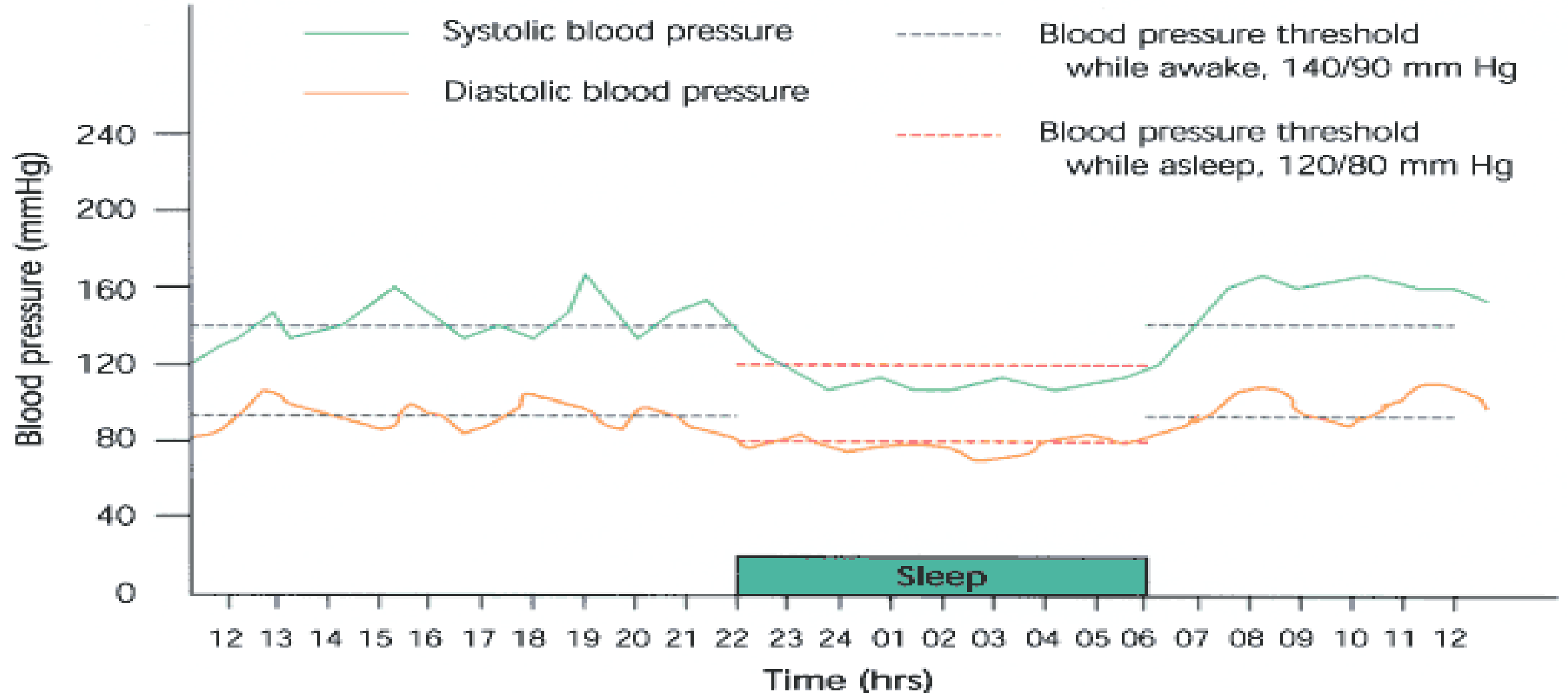


# Validity of ABPM in Nocturnal Hypertension

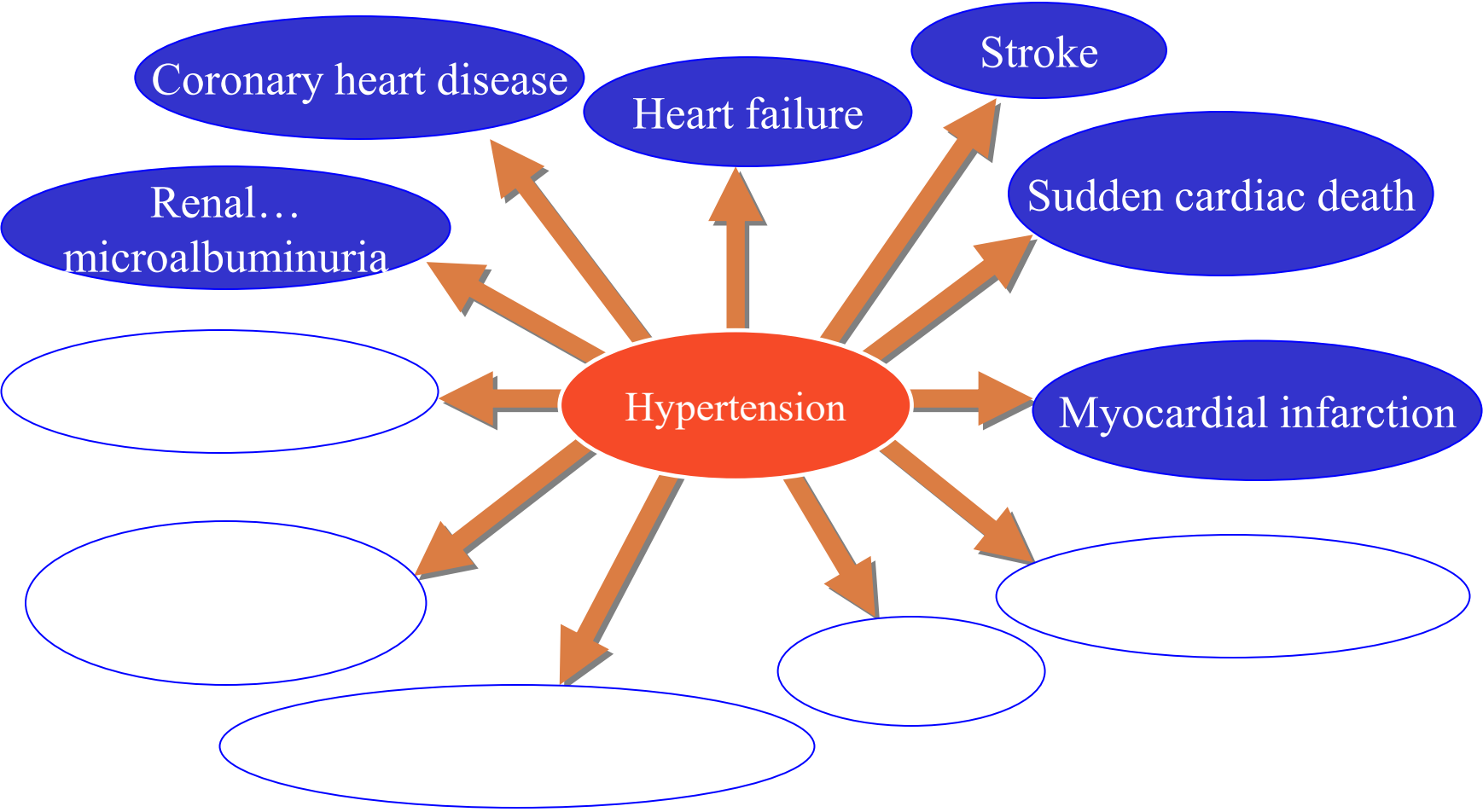
- 1) Nocturnal Dipping (10-20%)**
- 2) Non-dipping (< 10%)**
- 3) Extreme dipping (> 20%)**
- 4) Reverse dipping (> 0.1%)**



**Nondipper hypertension:** when the nocturnal BP has a less than 10% fall from day-time BP values (*blunted dipping*).



**Ambulatory BP monitoring may be useful in the reduction of incidence of stroke, heart diseases, organ damage & CV events due to hypertension.**



# **Disadvantages of 24-hour ABP monitoring**

## **What are the Disadvantages of 24 hours ABP monitoring?**

- Some discomfort due to 24-hour BP monitoring.
- Soreness in the upper arm due to repeated inflation of the cuff.
- Interfere with the sleep while BP measurement during the night.
- Irritation of the skin with a mild rash.

## **When is it not recommended?**

In patients with irregular heart rate and arrhythmias.

# Take home message...

- Consideration of the abnormal circadian rhythms in BP using *ABP monitoring* is important for the diagnosis and treatment of cardiovascular disorders and that restoration of normal circadian rhythms may be associated with clinical improvement.
- Consideration of *ABP monitoring* in the management & follow up of patients specifically those with hypertension, diabetes, CKD, obesity, hyperlipidaemia...etc

*Thank  
You*

