Régulation et dérégulation tensionnelle

Pr. Jean-Luc ELGHOZI jean-luc.elghozi@nck.aphp.fr



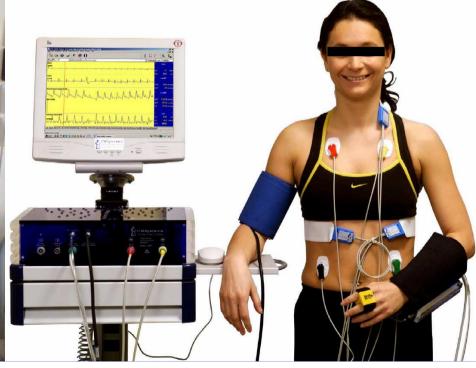
Le 'matériel' Moniteur de Pression

Portapres® Finometer® (ou le vieux Finapres®)

Nexfin TM CNAPTM monitor ou la tonométrie (forme de 1'onde de pression)



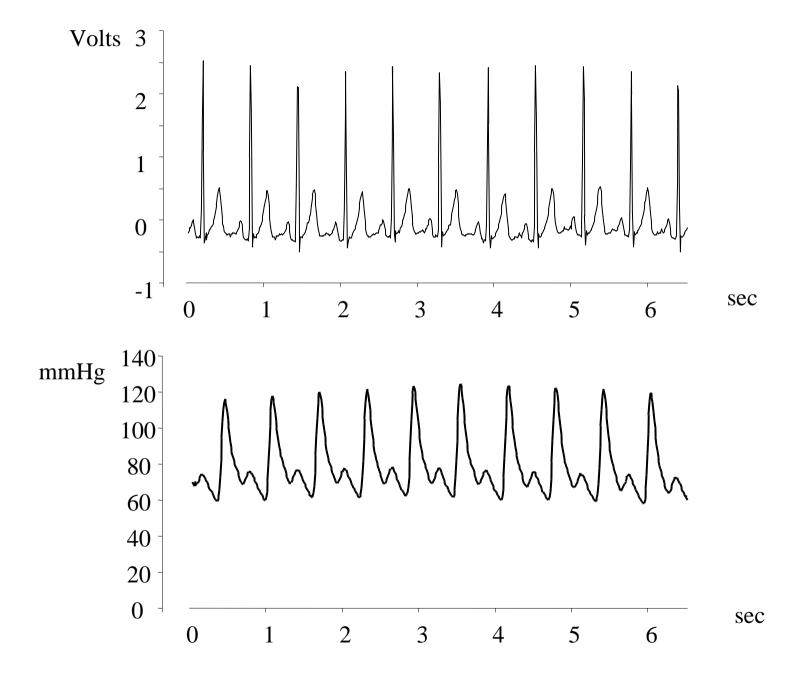




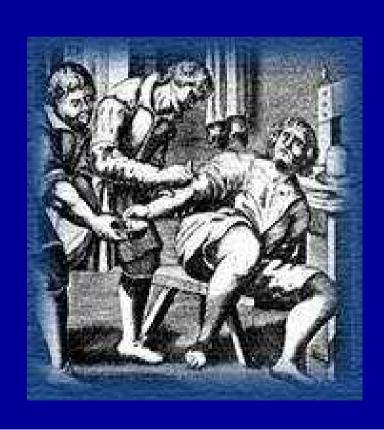
ECG

PA





Hypovolemia after blood withdrawal (phlebotomy)







Stroke volume monitored by modeling flow from finger arterial pressure waves mirrors blood volume withdrawn by phlebotomy

Pascal Leonetti Françoise Audat Arlette Girard Dominique Laude François Lefrère Jean-Luc Elghozi Clin Auton Res (2004) 14:176-181

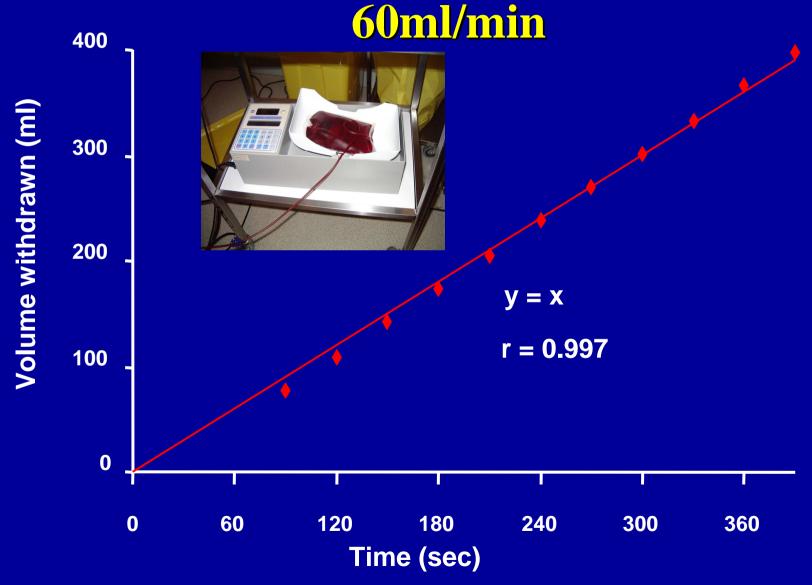
Left arm = blood withdrawal

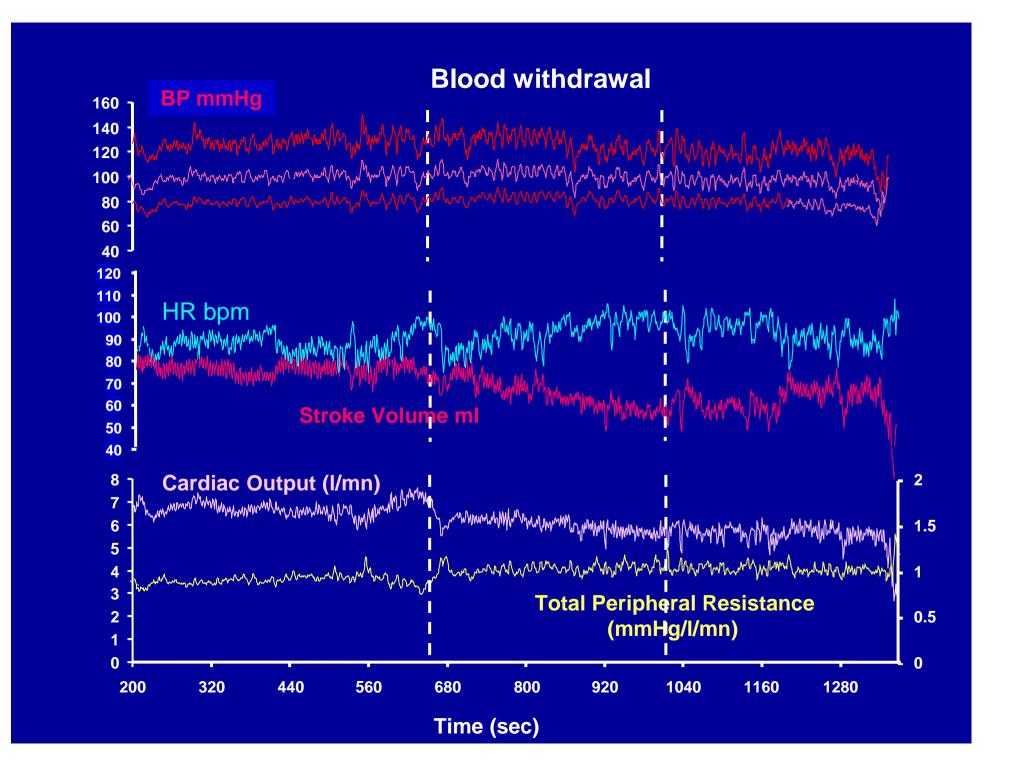


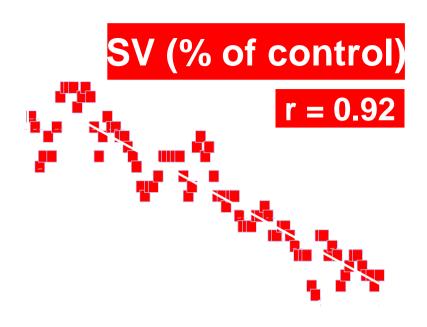
Right arm = blood pressure



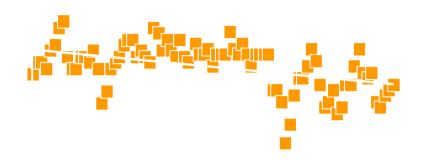
Rate of blood withdrawal =







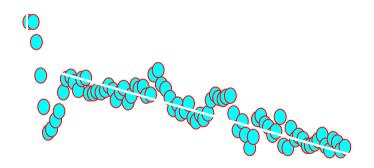
MBP (% of control)



HR (% of control)

OF CHARLES OF THE PROPERTY OF

CO (% of control)



VOLUME WITHDRAWN (% of total blood)

Table 2 Average correlation coefficients of the regression between the different hemodynamic variables and the normalized blood volume changes (in percent) obtained in the 12 subjects

	Correlation coefficient	Slope
Systolic BP	0.68 ± 0.05	-1.44±0.20
Diastolic BP	0.39 ± 0.09	-0.58 ± 0.18
Mean BP	0.57 ± 0.07	-1.01 ± 0.17
Pulse pressure	0.80 ± 0.04	-2.70 ± 0.29
HR	0.52 ± 0.09	$+1.01 \pm 0.25$
Stroke volume	0.88 ± 0.01	-2.15 ± 0.17
Cardiac output	0.64 ± 0.05	-1.25 ± 0.17
Total peripheral resistance	0.31 ± 0.05	$+0.55\pm0.30$

Values shown are means ± SEM

Revenons à nos moutons, syncopes et hypotension!









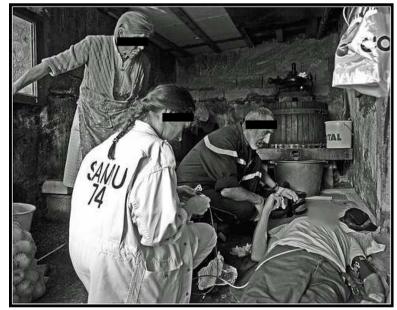


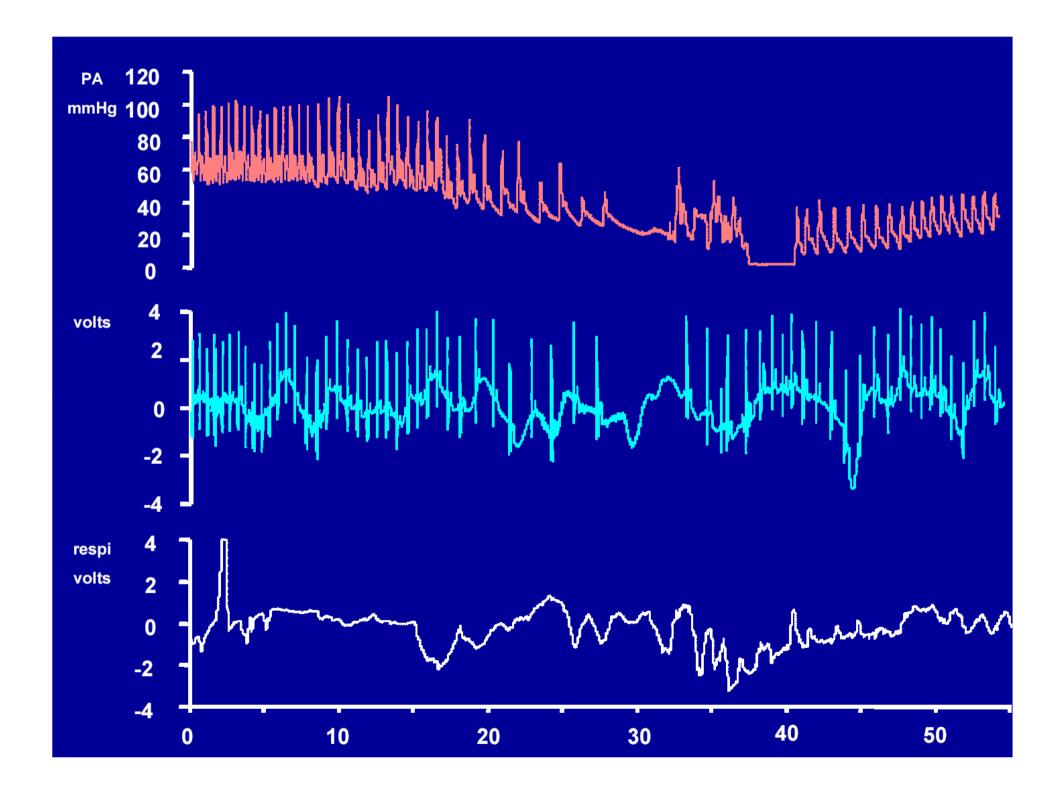
hypotension orthostatique (ou intolérance orthostatique)

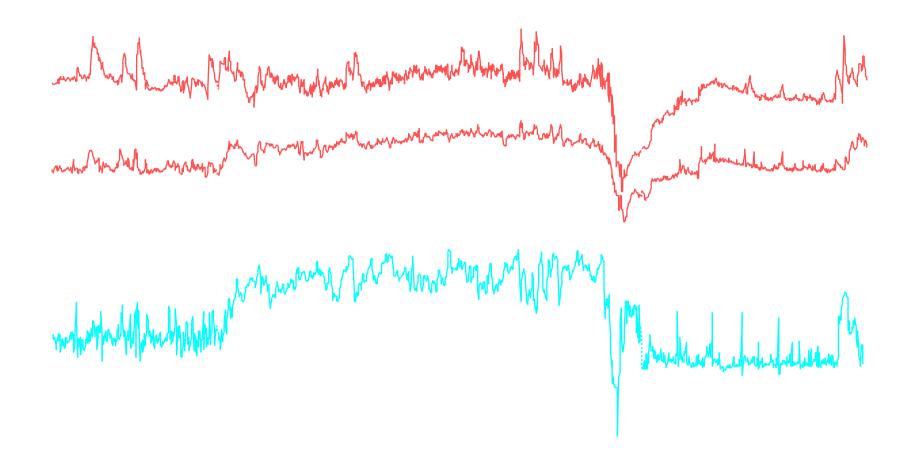




et SYNCOPES

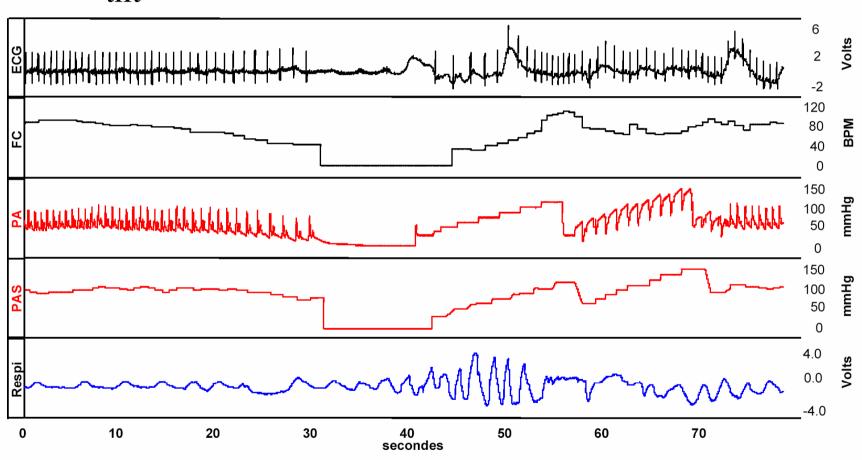






Exemple d'une syncope vaso-vagale

tilt



March 2008 · Volume 18 · Supplement 1

Clinical Autonomic Research

Official Journal of the American Autonomic Society, Clinical Autonomic Research Society and European Federation of Autonomic Societies

Indexed in Current Contents, Medline, SCI and SCOPUS



Update on Neurogenic Orthostatic Hypotension

Pathophysiology, prevalence and treatment

Horacio Kaufmann (Editor)

SUPPLEMENT





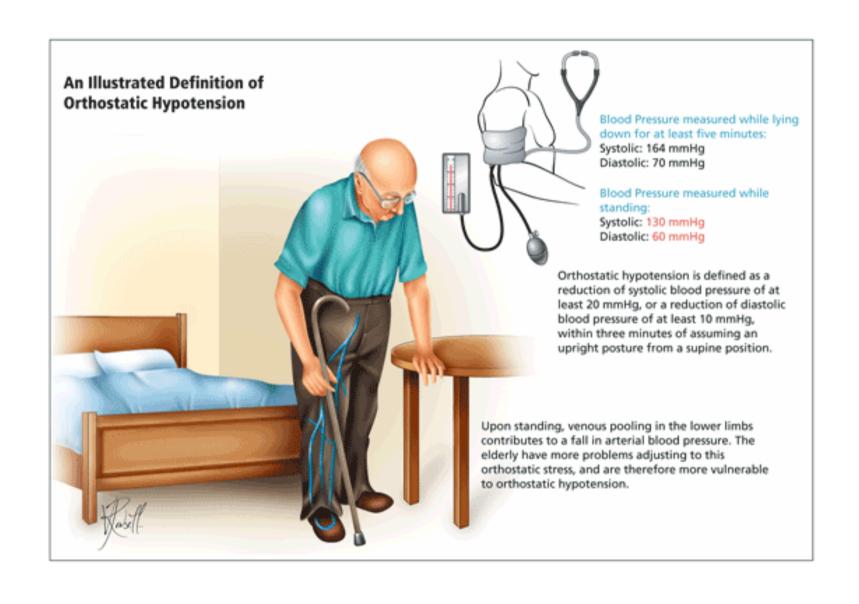
The NEW ENGLAND JOURNAL of MEDICINE

N ENGLJ MED 358;6 WWW.NEJM.ORG FEBRUARY 7, 2008

CLINICAL PRACTICE

Neurogenic Orthostatic Hypotension

Roy Freeman, M.B., Ch.B.



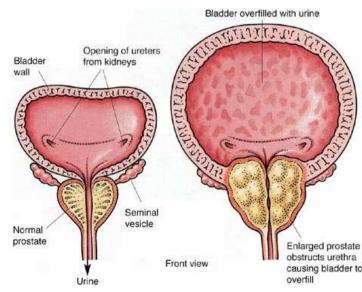
Médicaments 'hypotenseurs'

Traitements de l'hypertension artérielle = antihypertenseurs : diurétiques, alpha-bloquants, antihypertenseurs centraux, IEC, ARAII, bêta-bloquants, anticalciques

Dérivés nitrés donnés dans 1 'angine de poitrine

En psychiatrie: phénothiazines, antidépresseurs tricycliques aux propriétés alpha-bloquantes

Alpha-bloquants utilisés dans l'adénome prostatique



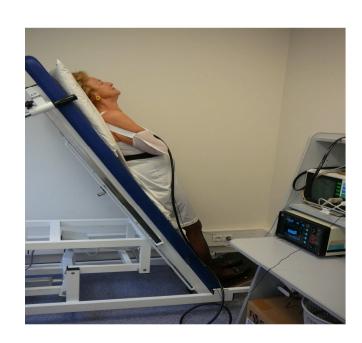


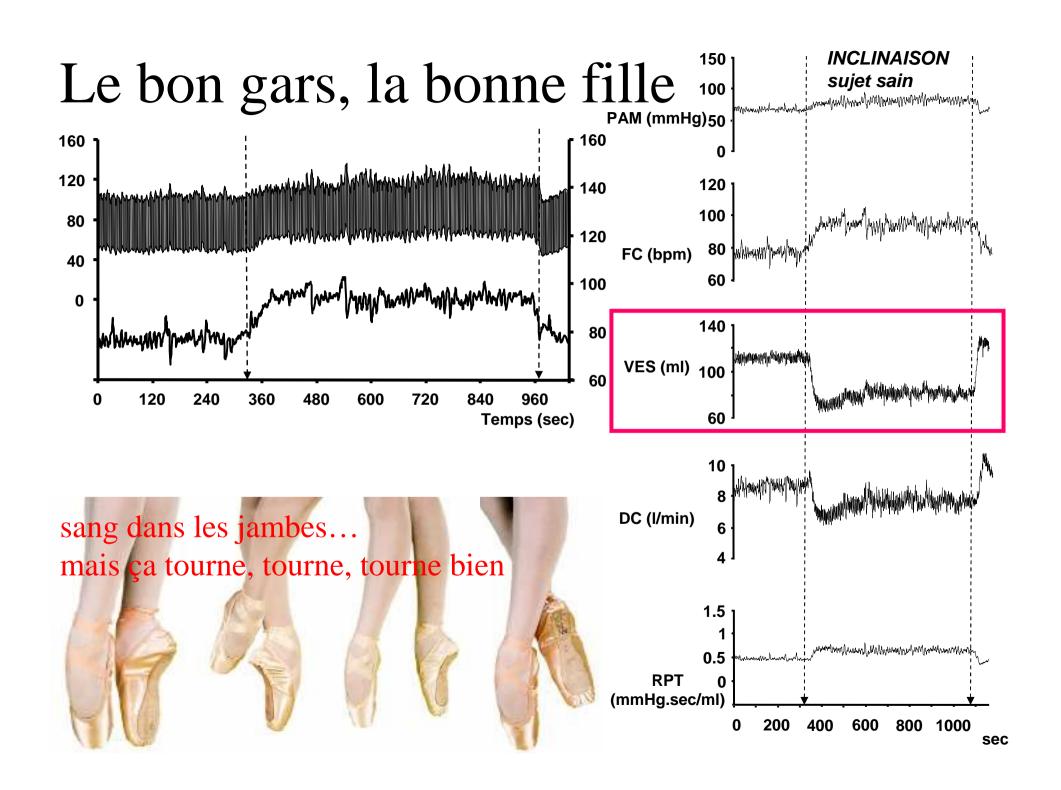


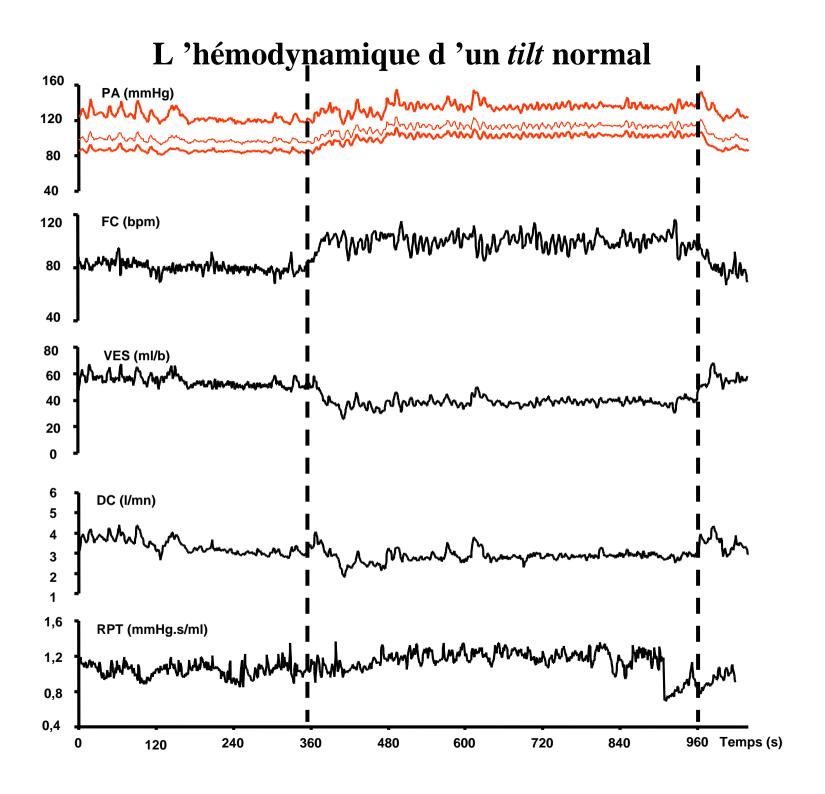
Debout Assis Couché



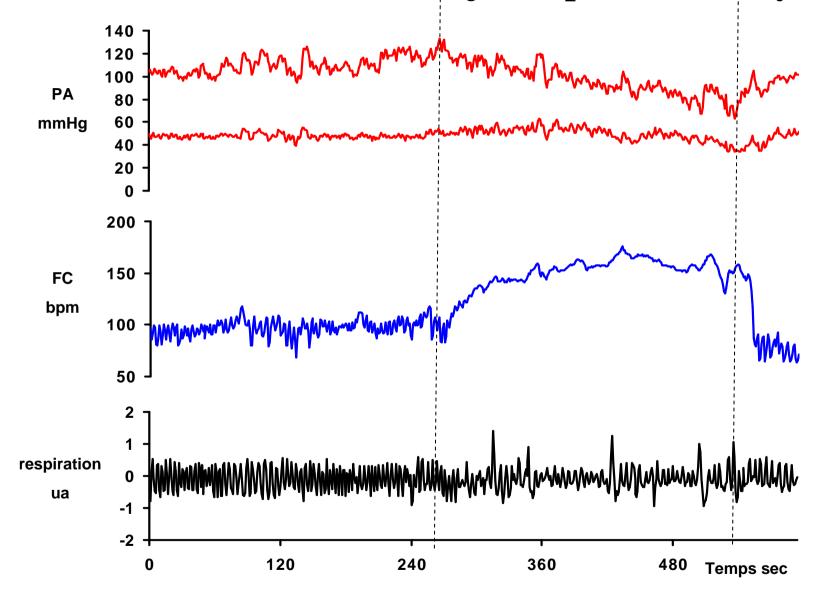
le tilt

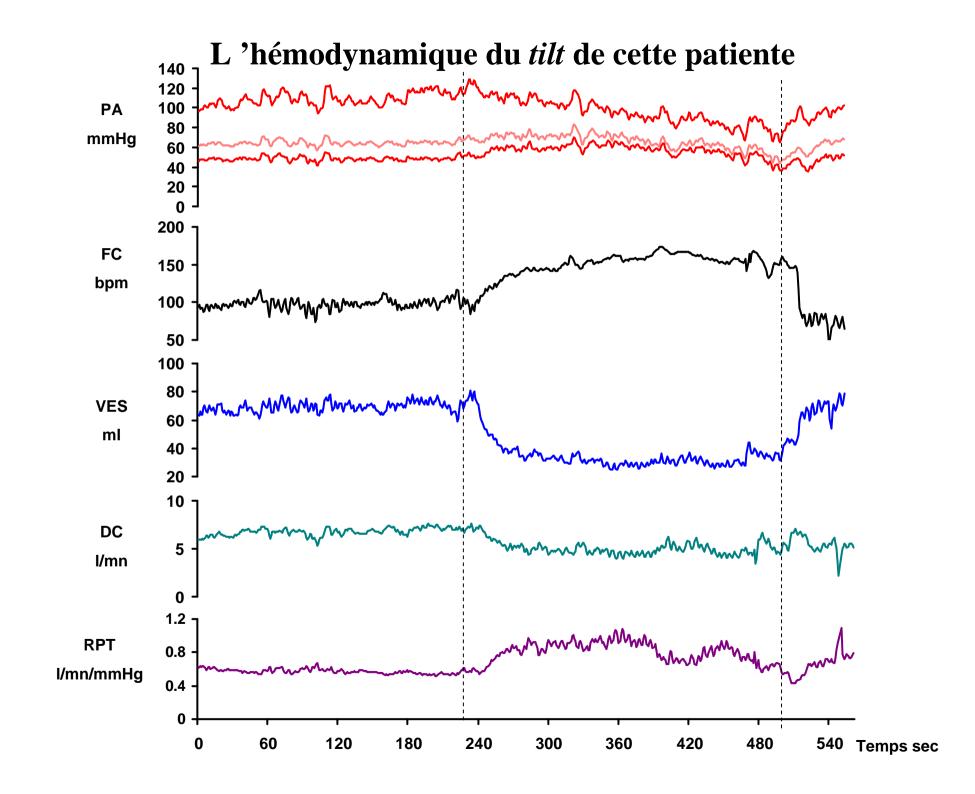






Le test d'inclinaison (tilt) d'une jeune patiente déshydratée





Pompe et tuyau fonctionnent de concert pour régler la PA

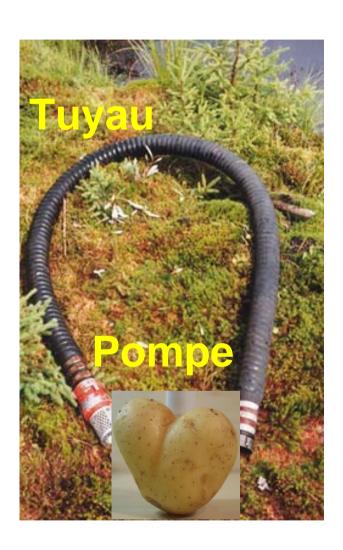
Mais comment?

- •
- •
- •
- •

Grâce à la boucle baroréflexe!

Que lui faut-il?

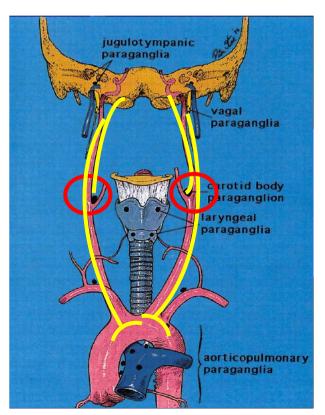
- Des senseurs
- Des nerfs
- et un centre (cerveau)

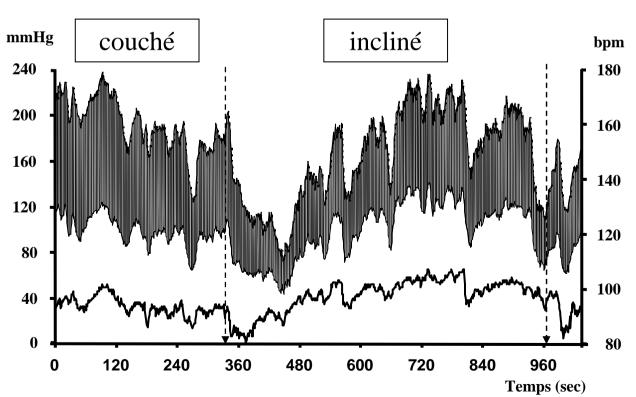




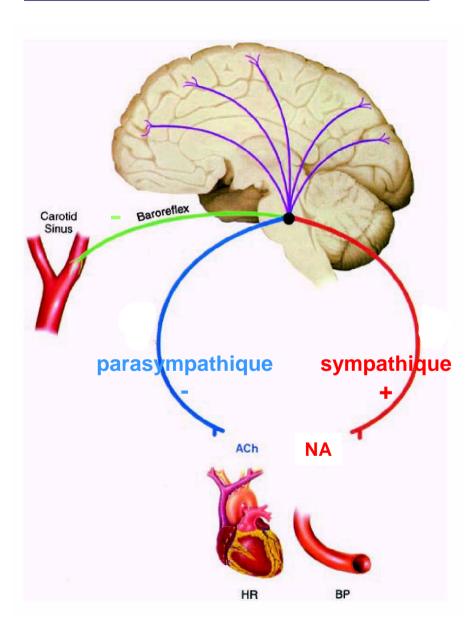
L'insuffisance du baroréflexe : un cas exceptionnel de variabilité tensionnelle extrême. Elghozi J.L., A. Girard et J. Ribstein *Rev. Méd. Int.* 2001 ;22 :1261-8.

Les zones réceptrices et les nerfs sont détruits, rien ne va plus!

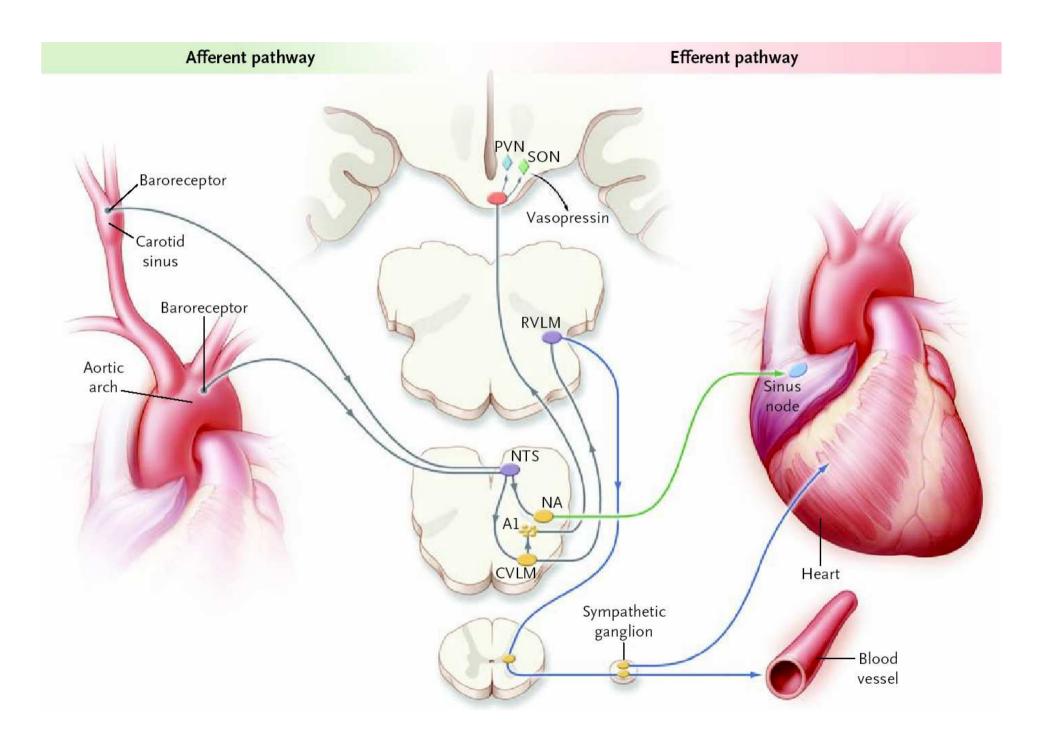




Le baroréflexe 'normal'



PA **3** décharges **3**





J'ai le baro qui flanche,
j'me souviens plus très bien
ou









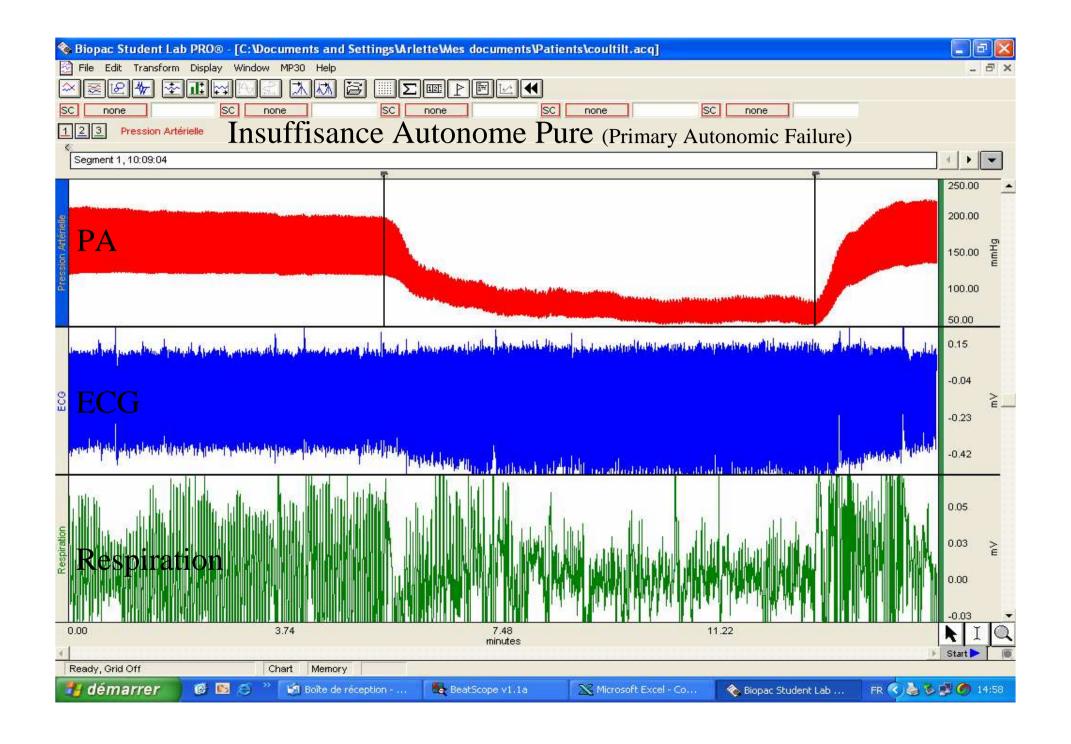
Classification mécanistique des dérèglements du baroréflexe

- Le signal de l'artère est mal relayé : Syndrome de Williams (élastine), pas de récepteurs (chirurgie du cou, radiothérapie)
- Les afférences conduisent mal l'influx (neuropathies afférentes: Guillain-Barré)
- Les centres (NTS) sont mal développés (Syndrome d'Ondine) ou détruits (accident bulbaire)

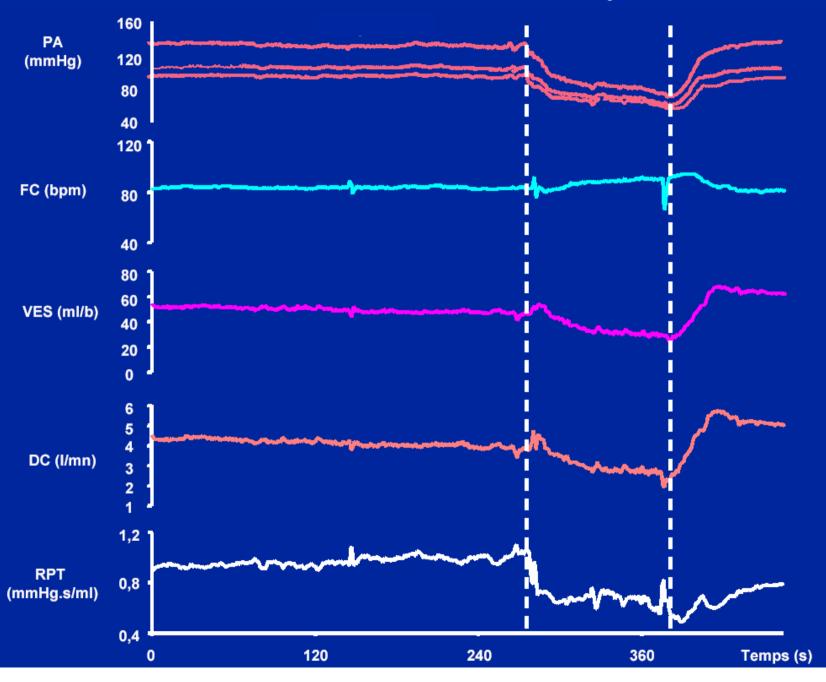
```
inactives = Insuffisance autonome =
= Le piège sémiologique
```

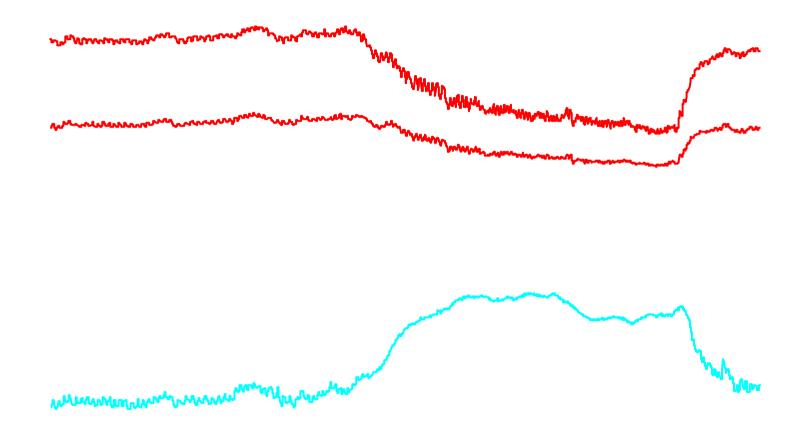
Typopsychologie tensionnelle

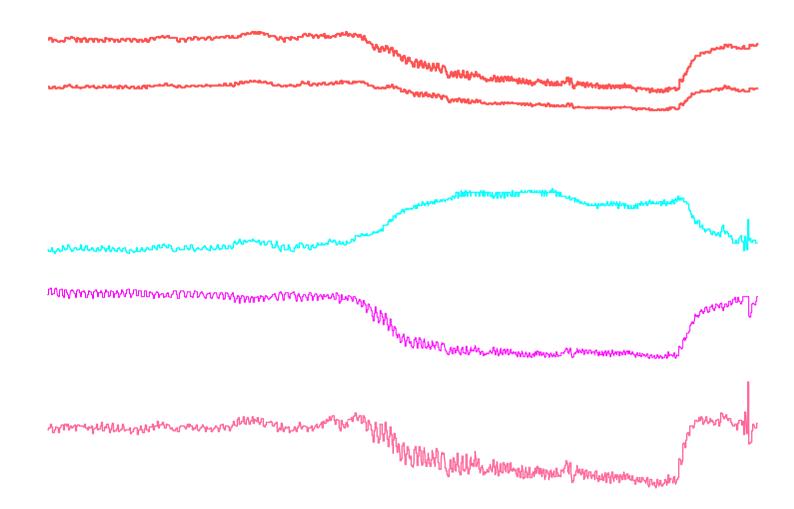
La PA varie dans un DEREGLEMENT BAROREFLEXE car les centres nerveux sollicitent cœur et artères et le baroréflexe n'est plus en mesure d'amortir ces 'émotions' cardio-vasculaires. L'insuffisant baroréflexe est un 'émotif'. Il réagit trop!

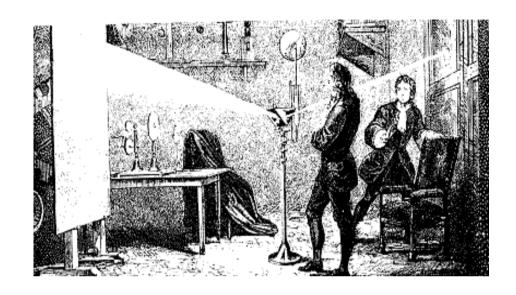


L'insuffisance autonome (PAF) déjà avancée

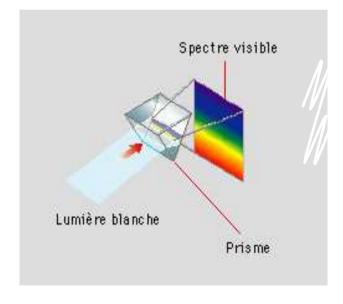


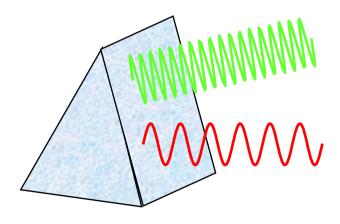






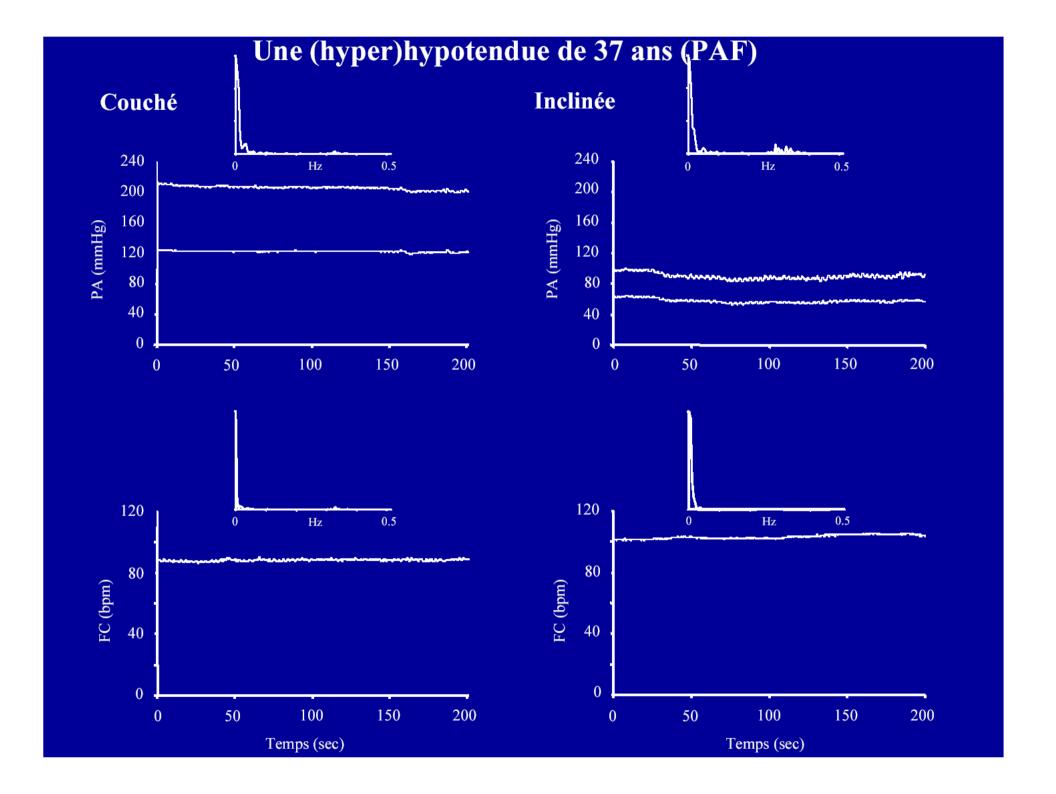


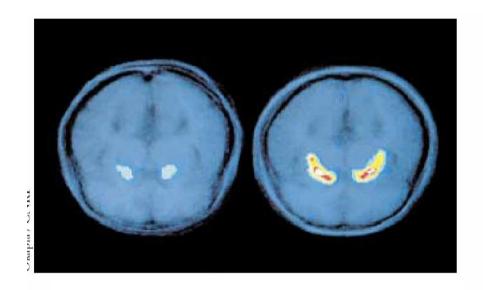




Couché

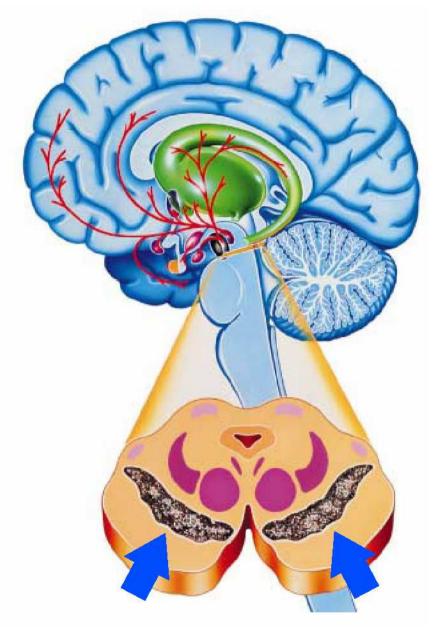
Debout





Les spécialistes distingueront :

- Une PAF
- Une neuropathie végétative
- Une MSA
- Une maladie de Parkinson



Management of Hypertension in the Setting of Autonomic Failure

A Pathophysiological Approach

Cyndya Shibao, Alfredo Gamboa, André Diedrich, Italo Biaggioni

TABLE 4. Stepwise Approach to Treat Orthostatic Hypotension

Eliminate iatrogenic causes of orthostatic hypotension

Antihypertensives during the day

Diuretics

Alpha-blockers used to treat prostate hyperplasia

Heavy meals

Nonpharmacological measures

Increase fluid intake, 16 oz tap water

Avoid standing quickly or standing motionless

Abdominal binder or waist-high pressure stockings

Raise head of the bed by 6-9 inches during nighttime

Avoid supine position during the daytime

Improve central volume

Treat anemia even if mild

Use recombinant erythropoietin if necessary

Fludrocortisone 0.1-0.3 mg every day with increased salt intake

Add NaCl tablets 1 gram with meals if necessary

Short acting pressor agents PRN

Midodrine 5-10 mg

Yohimbine 5.4 mg

Indomethacin 50 mg

Pyridostigmine 60 mg

0thers

Ergotamine 1 mg/caffeine 100 mg

Octreotide (12.5 mg-25 mg)

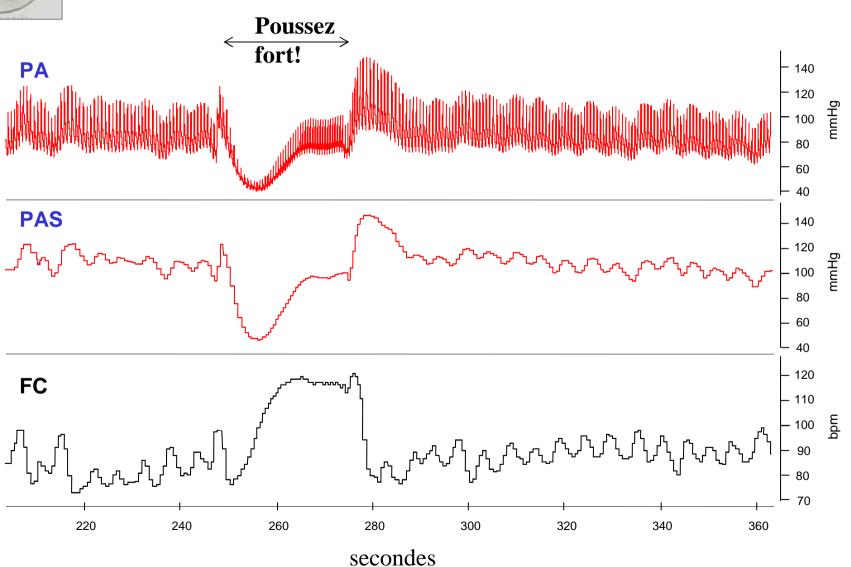
(Hypertension, 2005;45:469-476.)

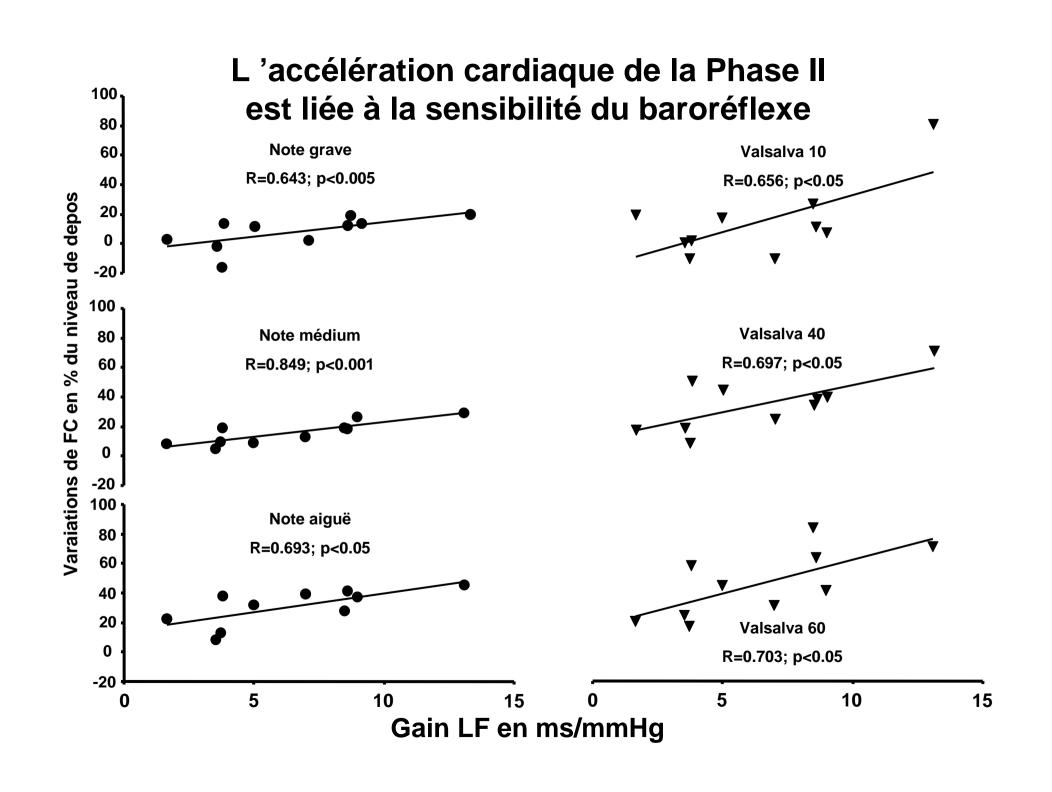
Les 'problèmes '

Altitude
Repas
Valsalva ' naturel '



E Viva Valsalva





Traitement = manœuvres, 'trucs 'et médicaments

Une obsession = les coronaires, une autre = les reins

Manœuvres et 'trucs'

Médicaments

Adrénergiques

Midodrine - Gutron®

dont L-DOPS = droxydopa à part

Autres

Yohimbine à fortes doses

Inhibiteurs d'acétylcholinestérase

Minéralocorticoïdes

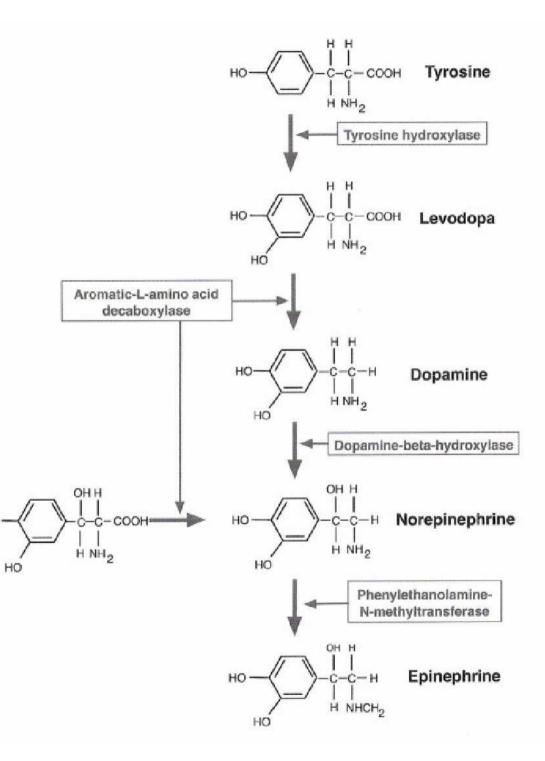
Fludrocortisone N.B.: 8 mg pour 250 gouttes dans le Panotile®!!

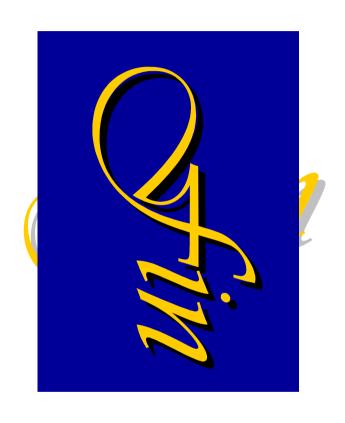
Analogues de la vasopressine

EPO

Octréotide - Sandostatine®

(Pacemaker)





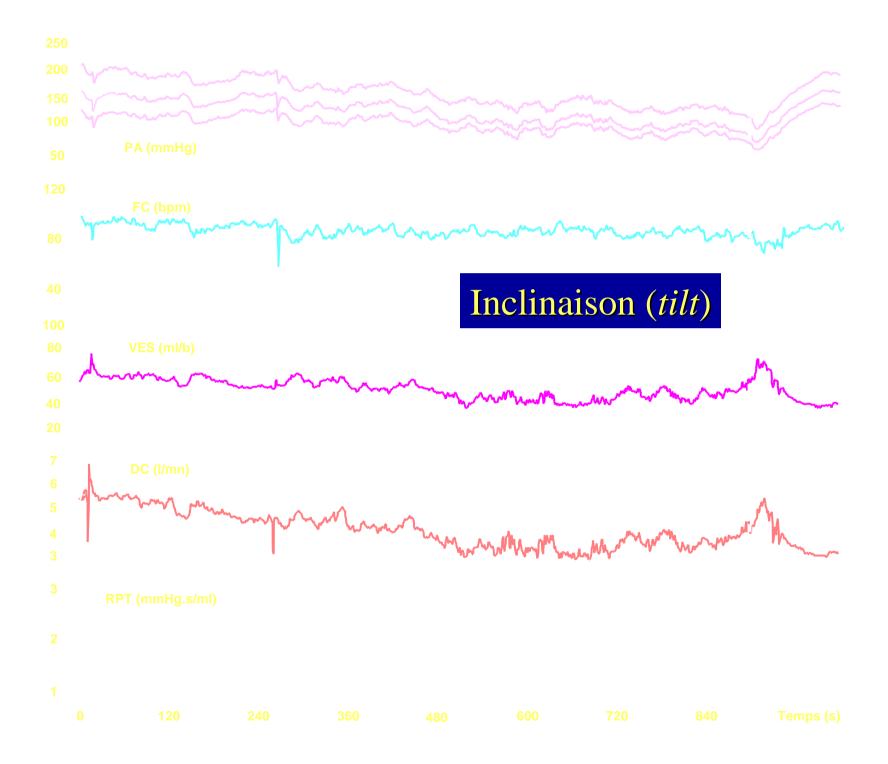
La Dysautonomie Familiale ou syndrome de Riley-Day

- •neuropathie héréditaire autonome et sensitive (HSAN type 3) transmise sur le mode autosomique récessif
- mutation (9q31) du gène IKBKAP codant pour la protéine IKAP (rôle dans l'élongation transcriptionnelle)
- •affecte les juifs ashkénazes (1 porteur sur 30, 1 pour 3600 naissances, 500 sujets atteints en France)
- •symptômes: xérophtalmie, langue sans papilles fungiformes, réflexe patellaire diminué, test à l'histamine anormal

Anomalies tensionnelles de la Dysautonomie Familiale

<u>hypotension orthostatique</u> sans tachycardie

hypertension épisodique (stress) hypertension en clinostatisme

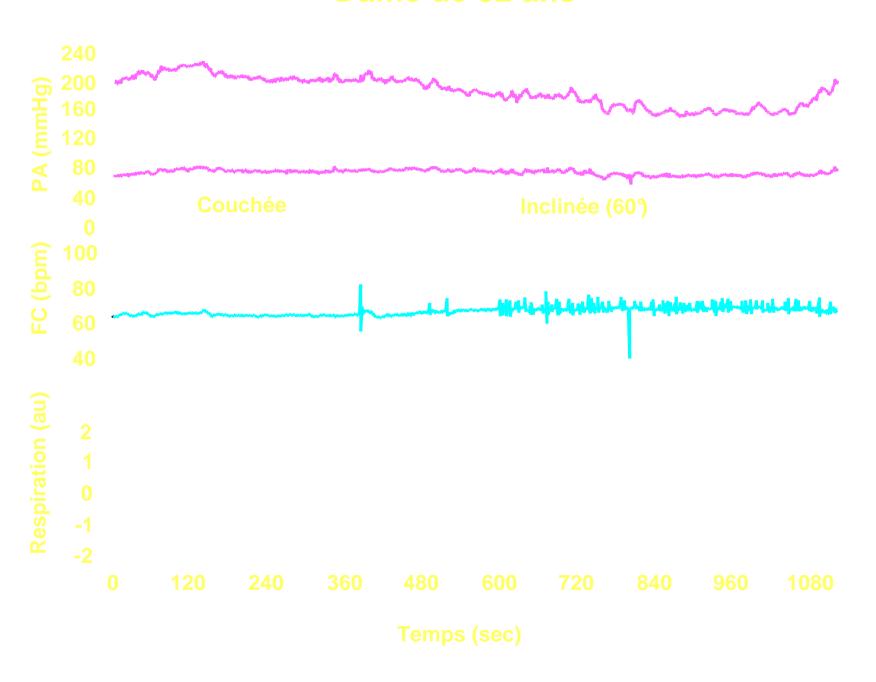


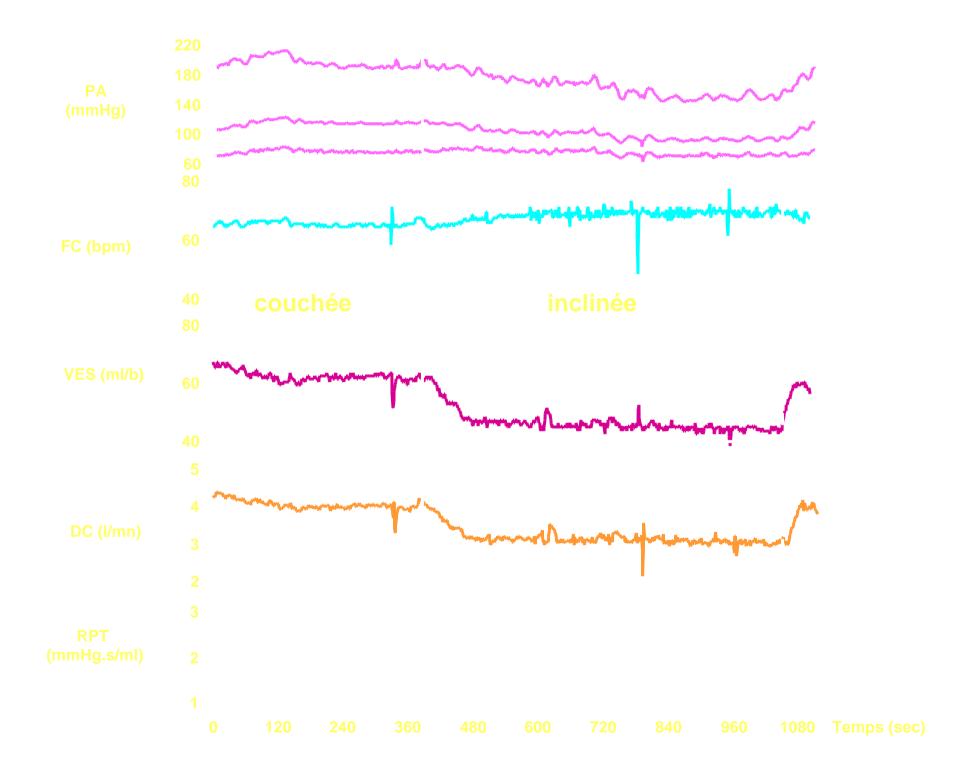
Le vieux, la vieille (âge > au plus âgé des présents)

hypotension orthostatique sans tachycardie
hypertension épisodique (stress)

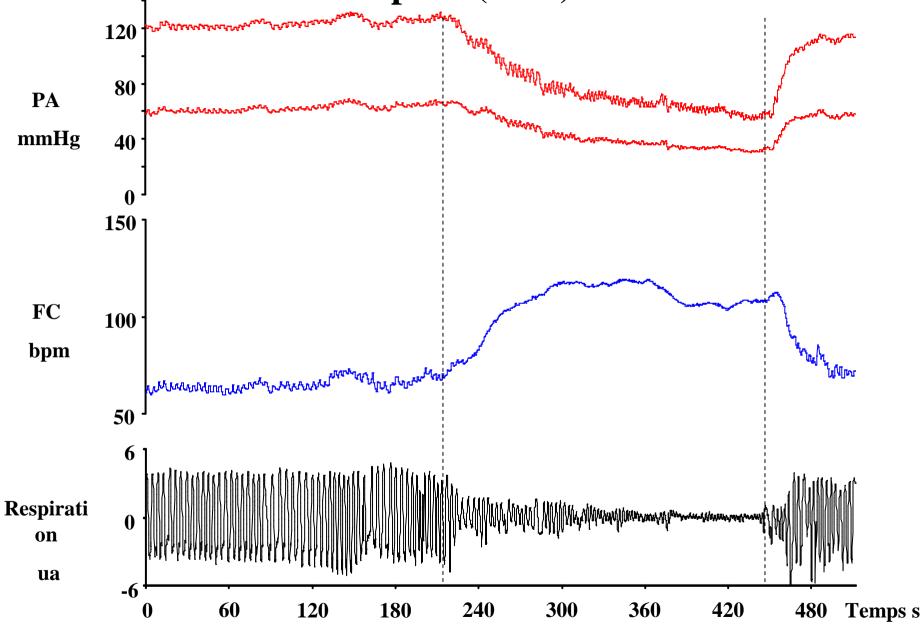
hypertension en clinostatisme

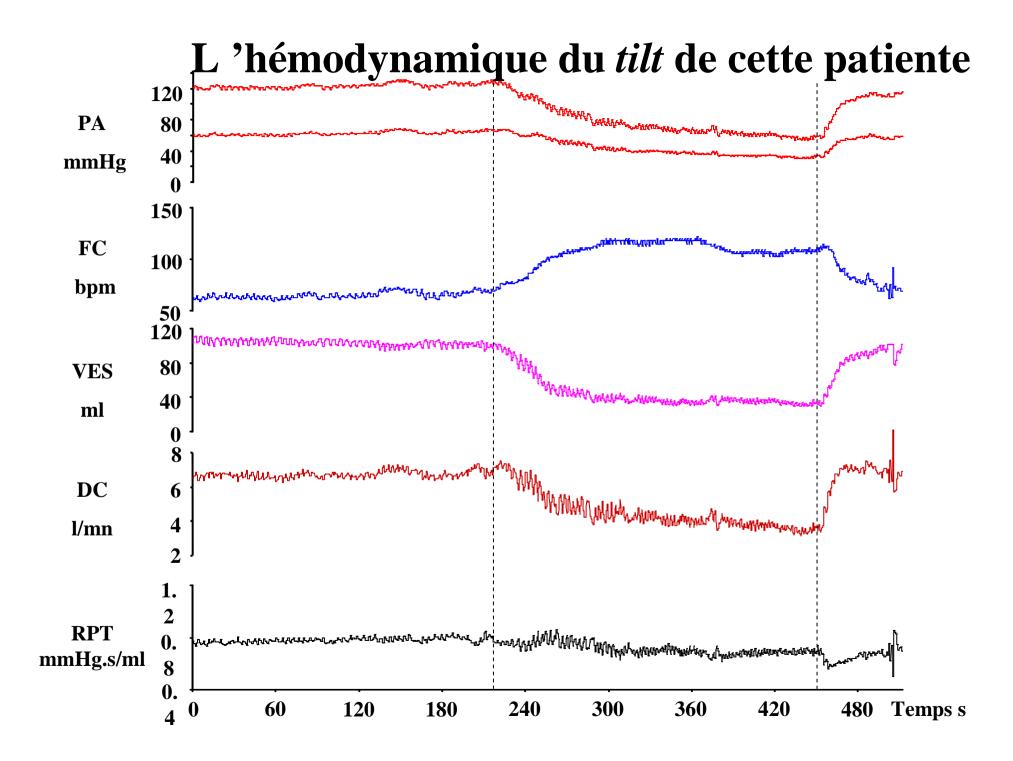
Dame de 82 ans





L'insuffisance autonome pure (PAF): début de la maladie



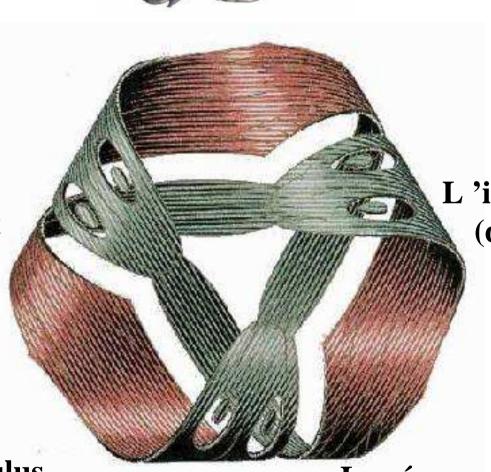


La boucle réflexe

ruban de Möbius

Le Centre

L 'influx nerveux (remonte)



L 'influx nerveux (descend)

Le stimulus c'est...la Pression

La réponse = cœur et tuyau c 'est...la Pression