DynaPulse News/011012

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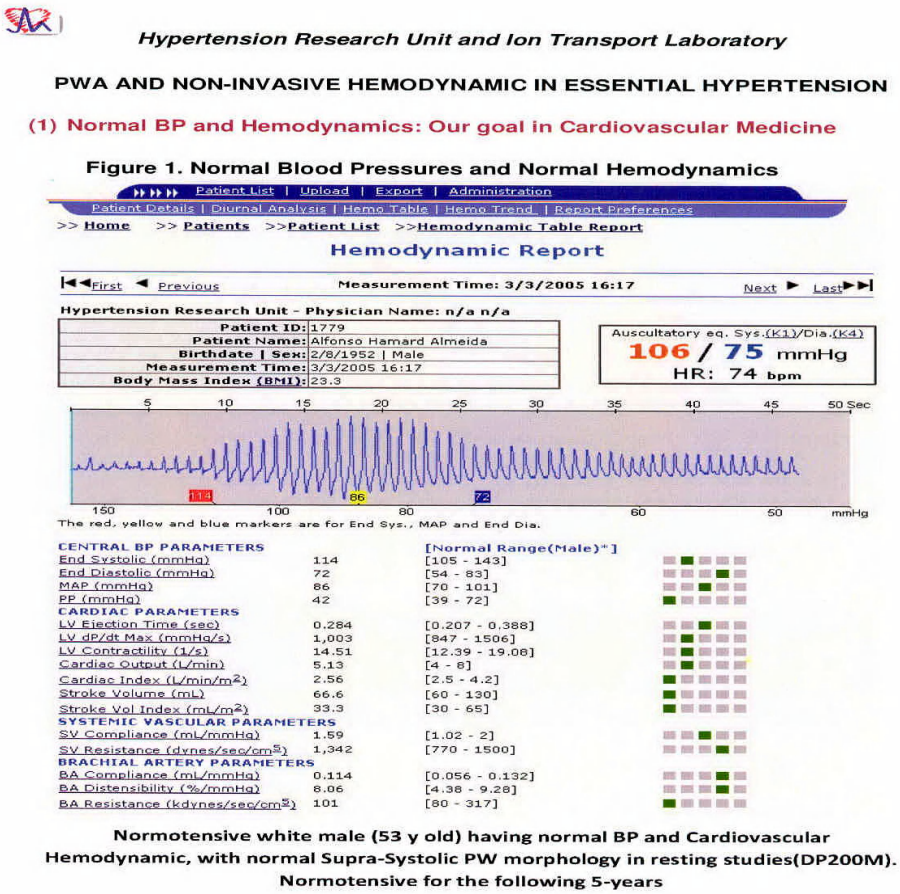
"Recent Advances on DynaPulse Technology in Cardiovascular Diseases" book, by Professor Delgado-Almeida, MD FACC, FAHA, et.al., published…

We congratulate Professor Delgado for his publication of this book that summarized his over 15 years clinical experiences, observations and studies on hypertension and cardiovascular diseases with DynaPulse blood pressure and supra-systolic pulse waveform (PW), and hemodynamic profile. His "**Aortic (Supra-systolic) pressure waveform classification**" is unique and an innovation, and his conclusion **"Our goal in cardiovascular medicine is 'Normal Blood Pressure (BP) and Hemodynamics"** is a major contribution to the advanced management of hypertension and cardiovascular diseases. Two examples illustrated:

Example-1: Normotensive white male (53 y old) having normal BP and cardiovascular Hemodynamics, with Supra-Systolic PW morphology in resting studies (DynaPulse 200M) – Observation result: "Normotensive for the following 5-years".



Hypertension Research Unit and Ion Transport Laboratory

PWA AND NON-INVASIVE HEMODYNAMIC IN ESSENTIAL HYPERTENSION

(1) Normal BP and Hemodynamics: Our goal in Cardiovascular Medicine

Figure 1. Normal Blood Pressures and Normal Hemodynamics

Patient List | Upload | Export | Administration

Patient Details | Diurnal Analysis | Hemo Table | Hemo Trend | Report Preferences

>> Home >> Patients >>Patient List >>Hemodynamic Table Report

Hemodynamic Report

First ◄ Previous Measurement Time: 3/3/2005 16:17 Next ► Last

Hypertension Research Unit - Physician Name: n/a n/a

Patient ID:	1779
Patient Name:	Alfonso Hamard Almeida
Birthdate | Sex:	2/8/1952 | Male
Measurement Time:	3/3/2005 16:17
Body Mass Index (BMI):	23.3

Auscultatory eq. Sys.(K1)/Dia.(K4)
106 / 75 mmHg
HR: 74 bpm

5 10 15 20 25 30 35 40 45 50 Sec

150 100 80 60 50 mmHg

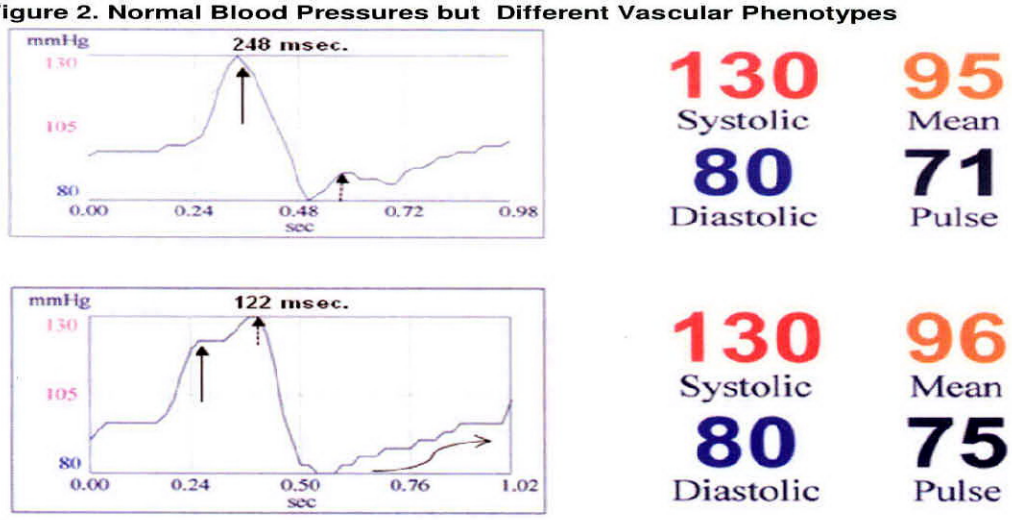
The red, yellow and blue markers are for End Sys., MAP and End Dia.

CENTRAL BP PARAMETERS		[Normal Range(Male)*]
End Systolic (mmHg)	114	[105 - 143]
End Diastolic (mmHg)	72	[54 - 83]
MAP (mmHg)	86	[70 - 101]
PP (mmHg)	42	[39 - 72]
CARDIAC PARAMETERS		
LV Ejection Time (sec)	0.284	[0.207 - 0.388]
LV dP/dt Max (mmHg/s)	1,003	[847 - 1506]
LV Contractility (1/s)	14.51	[12.39 - 19.08]
Cardiac Output (L/min)	5.13	[4 - 8]
Cardiac Index (L/min/m^2)	2.56	[2.5 - 4.2]
Stroke Volume (mL)	66.6	[60 - 130]
Stroke Vol Index (mL/m^2)	33.3	[30 - 65]
SYSTEMIC VASCULAR PARAMETERS		
SV Compliance (mL/mmHg)	1.59	[1.02 - 2]
SV Resistance (dynes/sec/cm^5)	1,342	[770 - 1500]
BRACHIAL ARTERY PARAMETERS		
BA Compliance (mL/mmHg)	0.114	[0.056 - 0.132]
BA Distensibility (%/mmHg)	8.06	[4.38 - 9.28]
BA Resistance (kdynes/sec/cm^5)	101	[80 - 317]

Normotensive white male (53 y old) having normal BP and Cardiovascular Hemodynamic, with normal Supra-Systolic PW morphology in resting studies(DP200M). Normotensive for the following 5-years

Example-2: Two young healthy females 26 years old, both had normal BP (130/80), but different Supra-Systolic waveform at rest, one normal (Type-I) and another abnormal (Type-IV) – Suggested "… reassessment the normotensive definition in essential hypertension" (Systolic and diastolic BP only is not enough to define 'normotensive', evaluation of supra-systolic waveform morphology for vascular phenotype and hemodynamic profiles are essential in advanced diagnosis of hypertension.)

Figure 2. Normal Blood Pressures but Different Vascular Phenotypes



Non-Invasive suprasystolic aortic waveform analysis (PulseMetric, DP 200 C) obtained in 2 young healthy females 26 years old. Large arrows identify maximum LV dP/dT, pressure-time ejection; small ones, peak pressure of reflected waves.

Top: Normal LV dP/dT and travel time of the reflected wave (248 ms, dash arrow) filling the coronary arteries in diastole. Bottom: restricted LV dP/dT and ejection period by the rapid transit time (122 ms) of reflected wave occurring at peak LV dP/dT that lessened diastolic pressures required for optimal coronary flows (curve arrow)

These obsrvations and the fact that half (46%) of normotensive offspring of hypertensives have PW abnormalities, defective RBC K-uptake, and develped hypertension after the age of 30 year, strongly support the reassessment of Control Groups or the normotensive status definition in essential hypertension