Flaccid Penile Acceleration as a Marker of Cardiovascular Risk In Men without Classical Risk Factors

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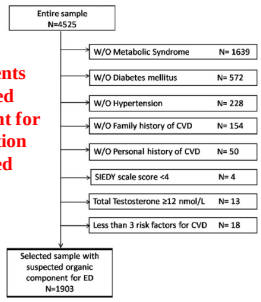


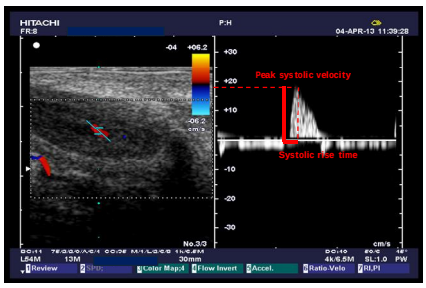
Only those patients with a suspected organic component for erectile dysfunction were considered

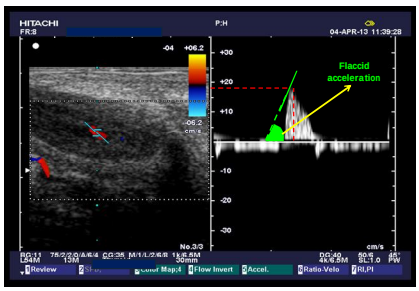
Introduction: Conventional cardiovascular (CV) risk factors identify only half of subjects with incident major adverse CV events (MACE). Hence new markers are needed in high CV risk subjects, as those with erectile dysfunction (ED). A role for dynamic peak systolic velocity (D-PSV) at penile color Doppler ultrasound (PCDU) has been suggested, but it is operator-dependent and time-consuming. Flaccid penile acceleration (FPA) is a PCDU parameter that reflects PSV, the systolic rise time (SRT) and end diastolic velocity (EDV), arithmetically defined as (PSV−EDV)/SRT.

Aim: To verify, in a large series of ED patients, whether FPA has a role in predicting MACE.

Methods: A selected series of 1903 patients (aged 54.6 ± 11.7) attending our Outpatient Clinic for ED was retrospectively studied from January 2000 until July 2012. A subset of this sample (n=622) was enrolled in a longitudinal study, ended in December 2007.

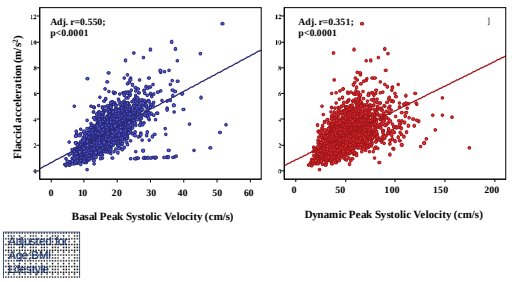
Main Outcome Measures: Several clinical, biochemical, and instrumental (PCDU) parameters were studied.



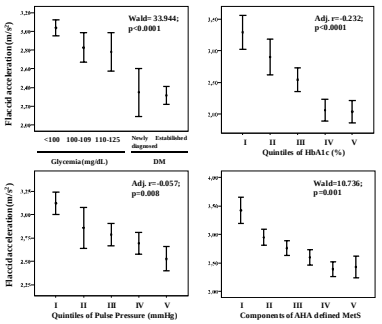


CROSS-SECTIONAL STUDY

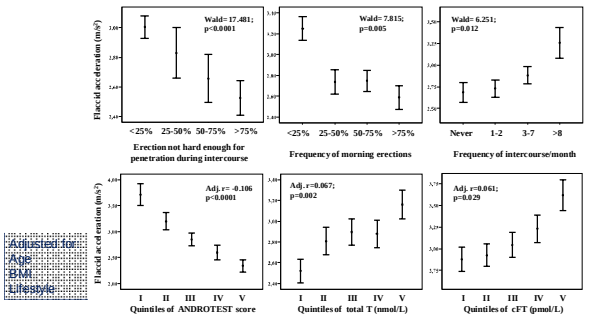
Flaccid acceleration is associated with both FLACCID and DYNAMIC PEAK SYSTOLIC VELOCITY



Flaccid penile acceleration is associated with METABOLIC DISORDERS



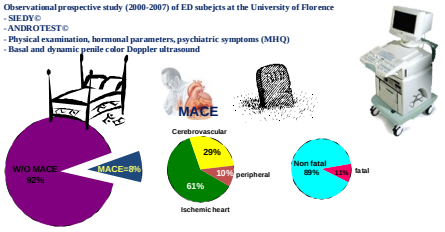
Flaccid acceleration is associated with SEXUAL SYMPTOMS and LOW ANDROGENIZATION



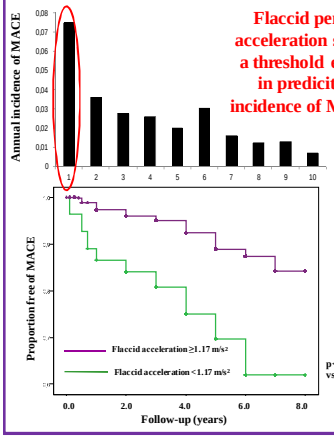
LONGITUDINAL STUDY

Università degli Studi di Firenze

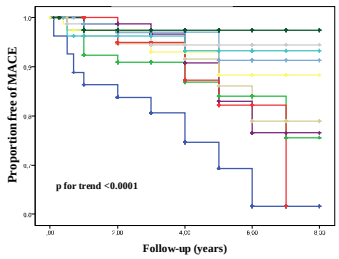
Observational prospective study (2000-2007) of ED subjects at the University of Florence
- SIEDY©
- ANDROTEST©
- Physical examination, hormonal parameters, psychiatric symptoms (MHQ)
- Basal and dynamic penile color Doppler ultrasound



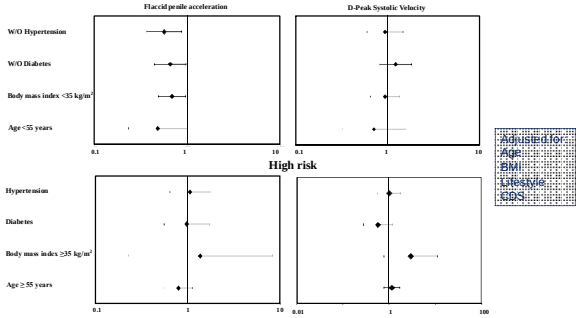
Flaccid penile acceleration shows a threshold effect in predicitng incidence of MACE



Flaccid penile acceleration is associated with an increased incidence of MACE



Flaccid penile acceleration is independently associated with an increased incidence of MACE only in LOW RISK SUBJECTS



Confirmed previous results

	NO	YES
Hypertension	2.791 [1.382-5.634]; p=0.004	NS
Diabetes	3.297 [1.617-6.722]; p=0.001	NS
Body Mass Index ≥35 kg/m²	2.445 [1.296-4.615]; p=0.006	NS
Age ≥55 years	3.094 [1.000-9.756]; p=0.05	NS

CONCLUSIONS

- **Penile flaccid acceleration is a measurement requiring few minutes to be obtained**
- **It is relatively inexpensive and devoid of side-effects**
- **It recapitulates other PCDU parameters (PSV and SRT)**
- **It identifies adverse metabolic profile and CV risk**
- **It is useful in subjects commonly classified as "at low-risk"**