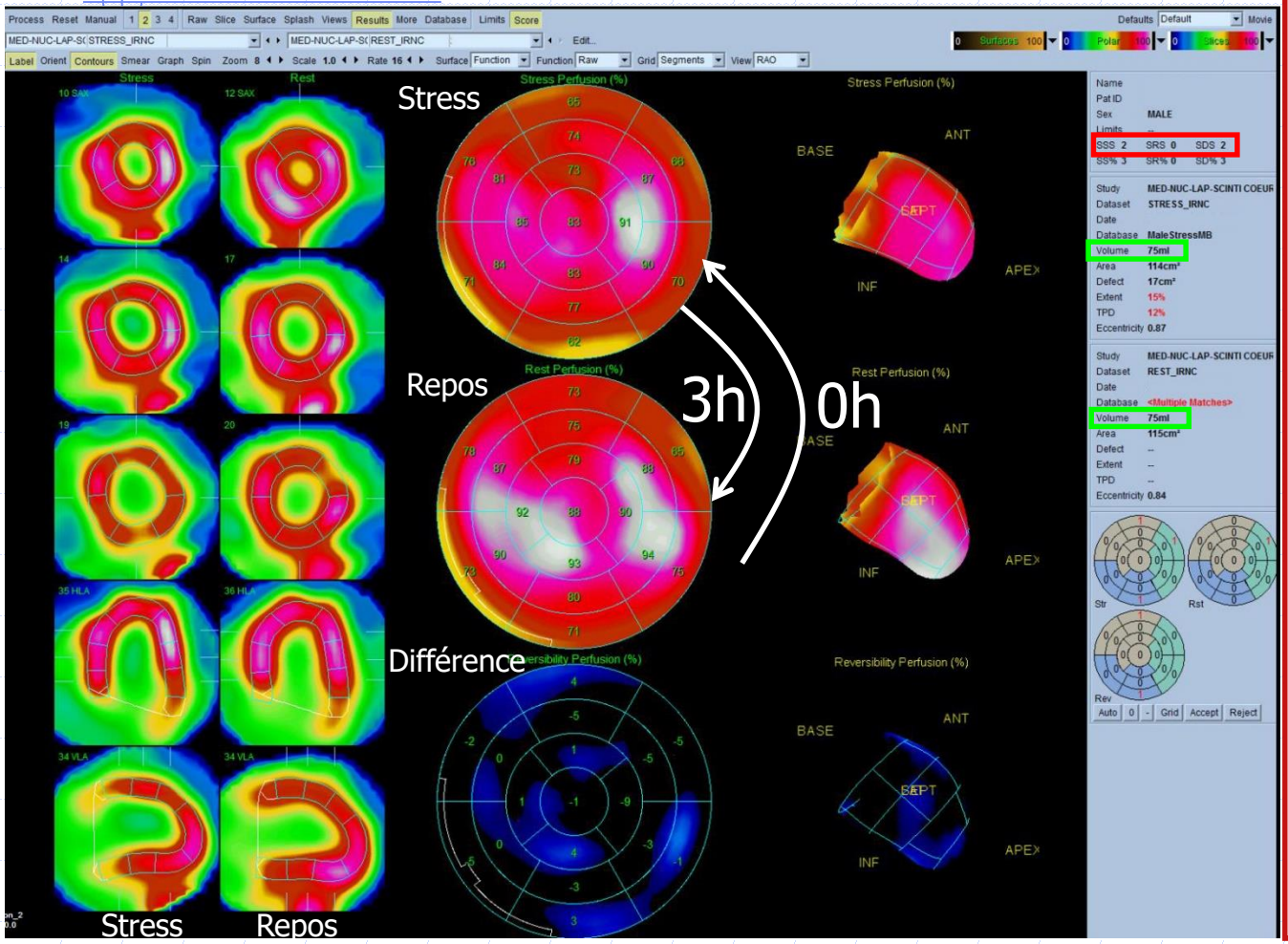
LA SCINTIGRAPHIE DE PERFUSION MYOCARDIQUE A L'ERE DE LA QUANTIFICATION

Denis
MARIANO-GOULART
Médecine nucléaire
CHRU de Montpellier

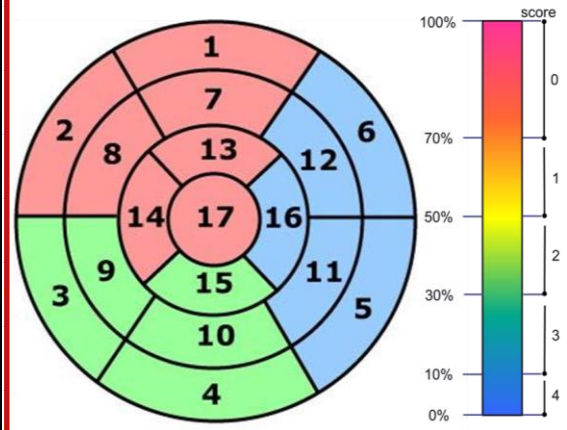
http:\\scinti.edu.umontpellier.fr

Quantitative Perfusion SPECT (QPS)



1- Quantification relative (QPS)

Scores sommés
% Surface VG anormale



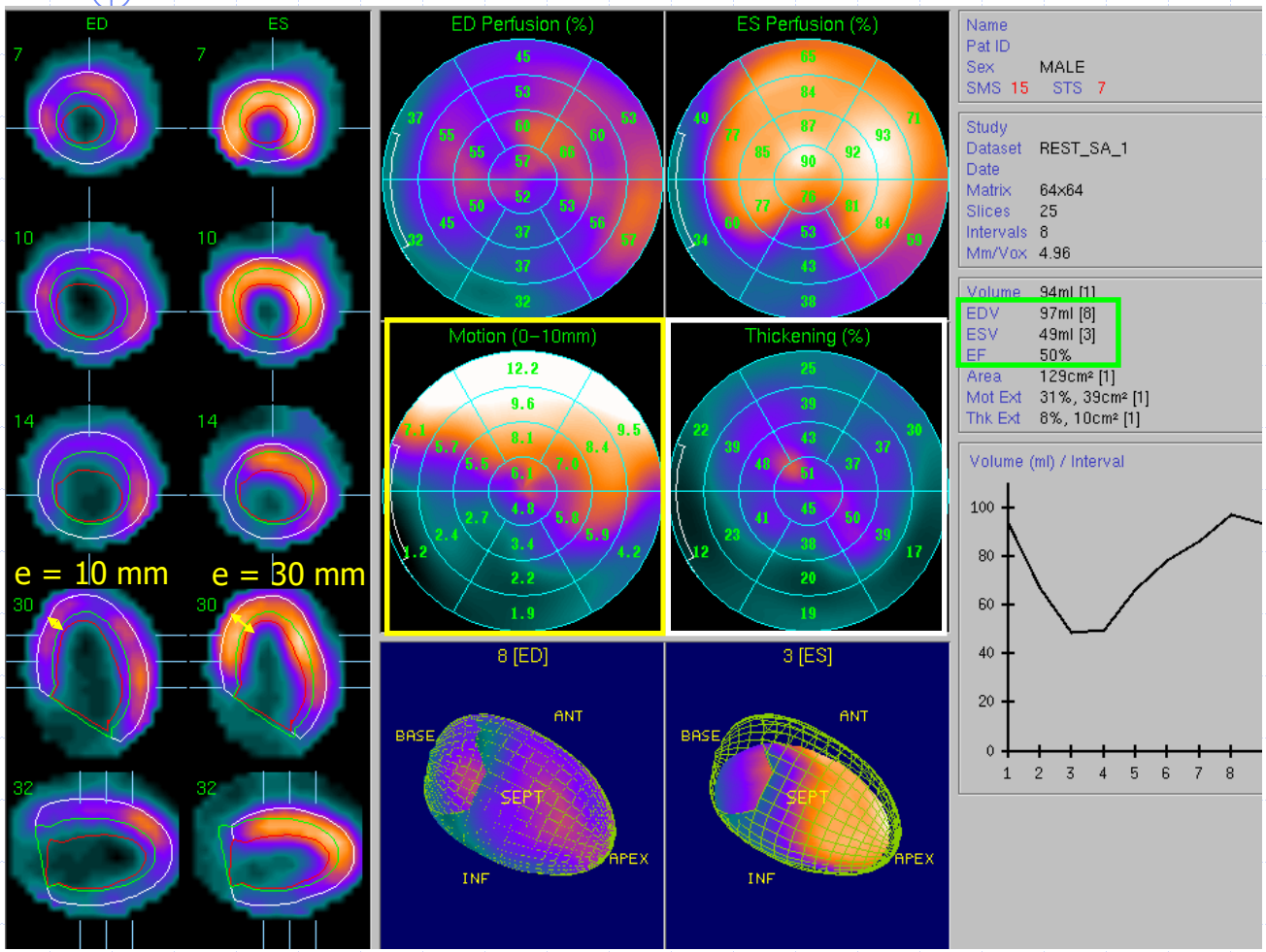
2- Dilatation VG (QPS)

DIT: V_{stress}/V_{repos}(non gated) > 1,4

Remodelage VG : V > 63 mL/m²
soit environ 120 (H) ou 100 (F) mL

A Ghatak Semin Nucl Med 2013; 43:71-81 – MD Duca J Nucl Cardiol 1999; 6:570-6
T Sharir J Nucl Cardiol 2018;25:738-741 – M Alama J Nucl Cardiol 2018;25:724-37

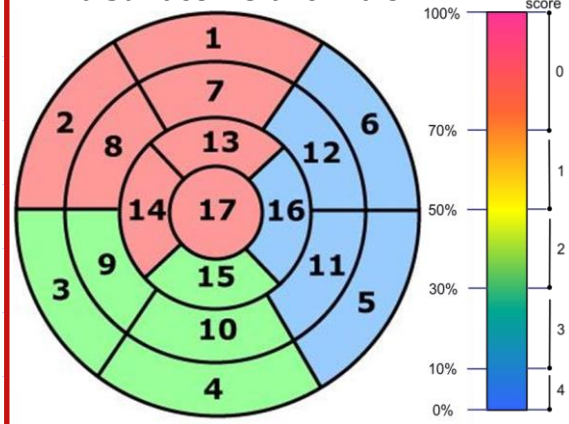
Quantitative Gated SPECT (QGS)



e/LMH = 0,7
CR = 0,6
Perte de 40 %

e/LMH = 2
CR = 1

1- Quantification relative (QPS)
Scores sommés
% Surface VG anormale



2- Dilatation VG (QPS)
DIT: V_{stress}/V_{repos}(non gated) > 1,4
Remodelage VG : V > 63 mL/m²
soit environ 120 (H) ou 100 (F) mL

3- Cinétique segmentaire (QGS)
Sidération (au stress)
Hibernation (au repos et stress)

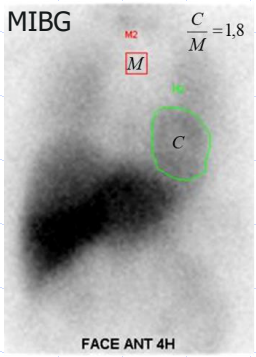
4- Artefacts d'atténuation (QGS)
Hypo S/R à ES normal ou AC par CT

5- Pronostic CV à 3 ans (QGS)
FE < 51 (F) ou 43% (H)
ESV > 27 (F) ; 39 (H) mL/m² (40 ; 70 mL)

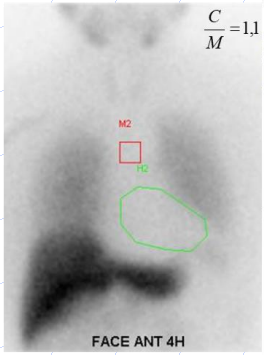
JR Galt. IEEE Trans Med Imag. 1990; 9 ; G Germano. JACC 1997;30 ;
T. Sharir et al. Circulation 1999;100 ; J Nucl cardiol 2006;13(4) et J Nucl cardiol 2018;25; Emmet JACC 2002;39;
S Karimi-Ashtiani J Nucl Med 2012;53; Wei Yang J Nucl Cardiol 2018;25

SPECT D'INNERVATION SYMPATHIQUE

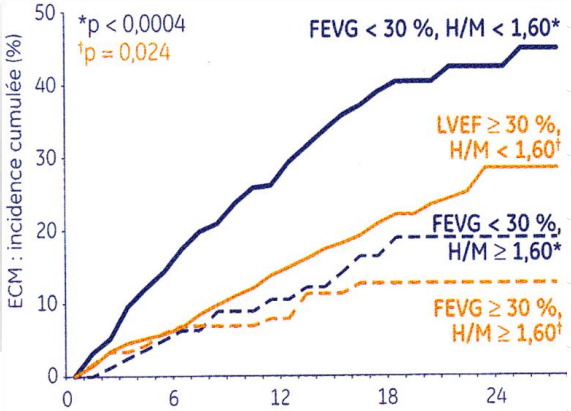
- Pronostic IC NYHA 4 / Indication DAI

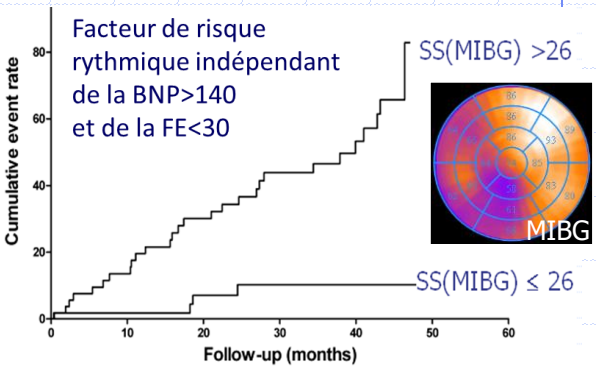


90% survie à 2 ans

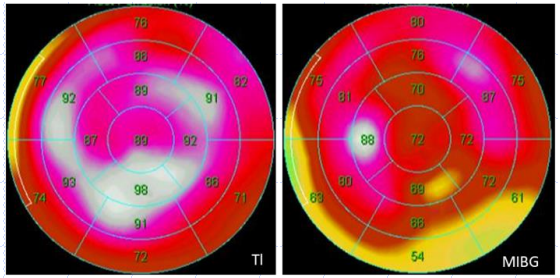


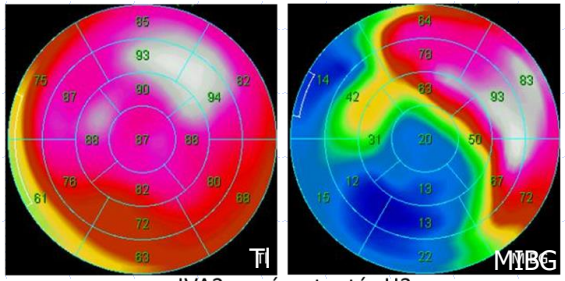
60% survie à 2 ans





CD3 subocclusive stentée H3, 80% / IVA2 + Mg1, stentées J3



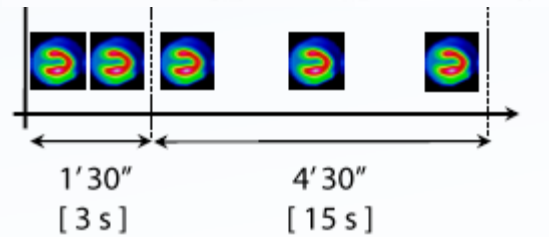


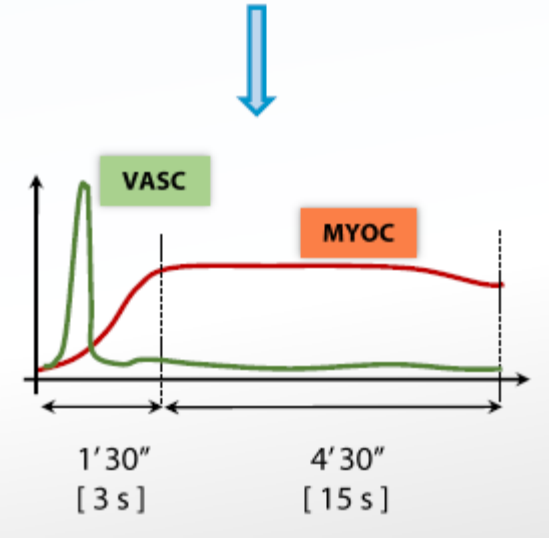
IVA2 serrée, stentée H3

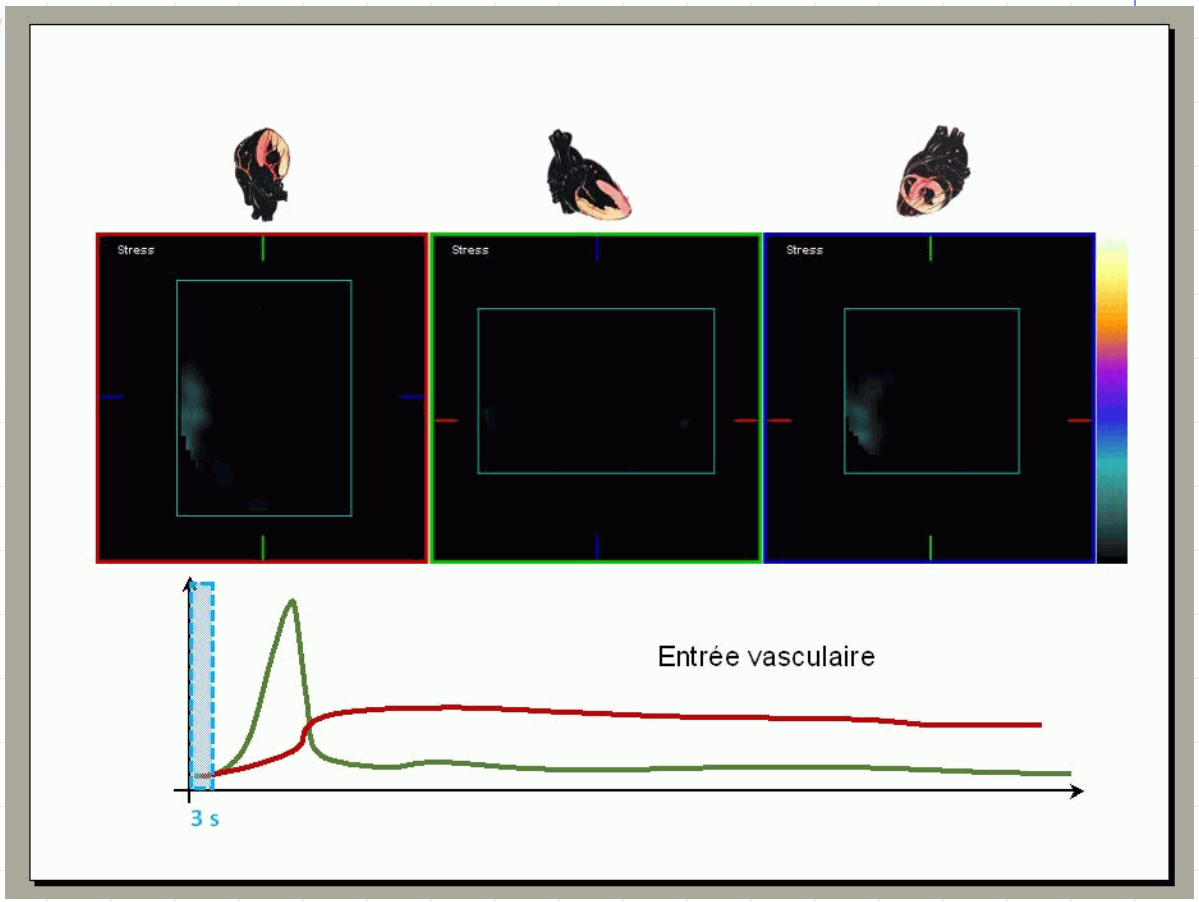
- Zones à risque/Gâchette
  - Viables avec recapture MIBG altérée

Admire HF (N=961) AF Jacobson et al. JACC 2010; 55(20) - MJ Boogers et al. JACC 2010; 55(24) - Bax et al. Circ Cardiovasc Imaging 2008 - E d'Estanques et al. J Nucl Cardiol 2017;24-C. Hédon, Nucl Med Comm 2018;26-F Vauchot J Nucl Cardiol 2018;25-JT Ortiz-Perez Eur Heart J 2007;28

SPECT DYNAMIQUE (LIST MODE)







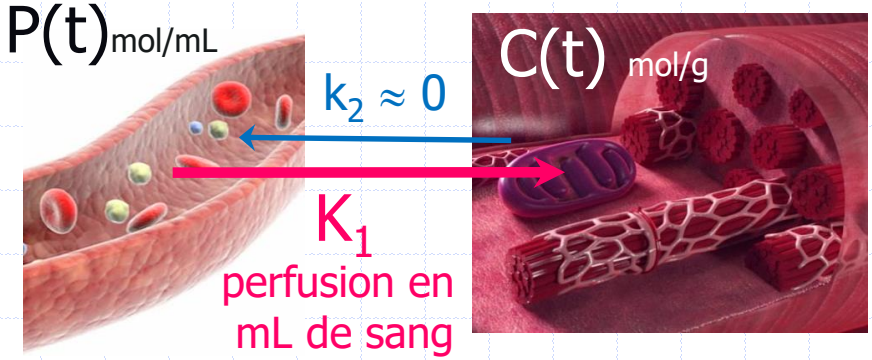
1 mCi Tc-TF — centrage

5 mCi Tc-TF — Repos List 5'

0,56 mg/kg DIP — 4'

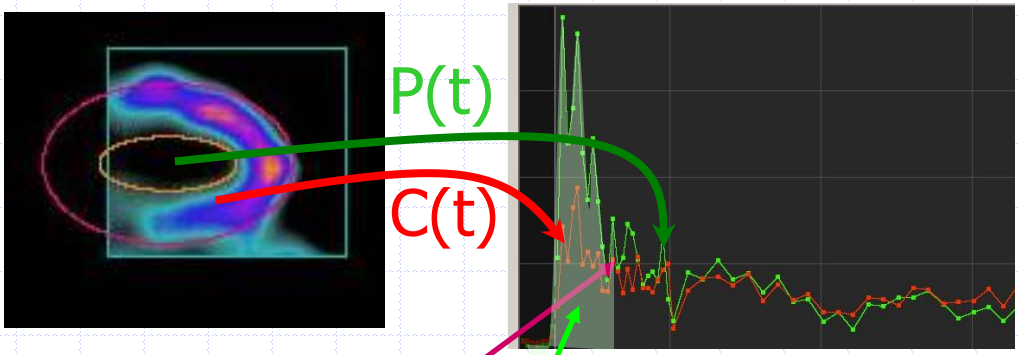
18 mCi Tc-TF — Stress List 5'

RESERVE CORONAIRE

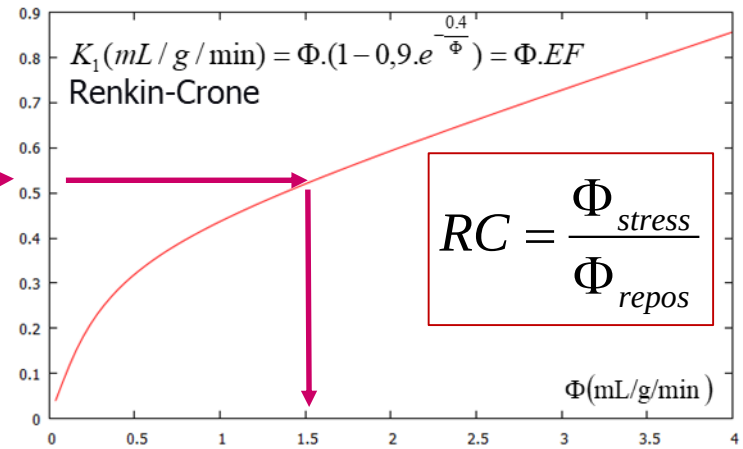


$$\frac{dC(t)}{dt} = K_1.P(t) \Rightarrow \int_0^t \frac{dC(t)}{dt}dt = K_1.\int_0^t P(t)dt$$

$$C(t) = K_1.\int_0^t P(t)dt$$



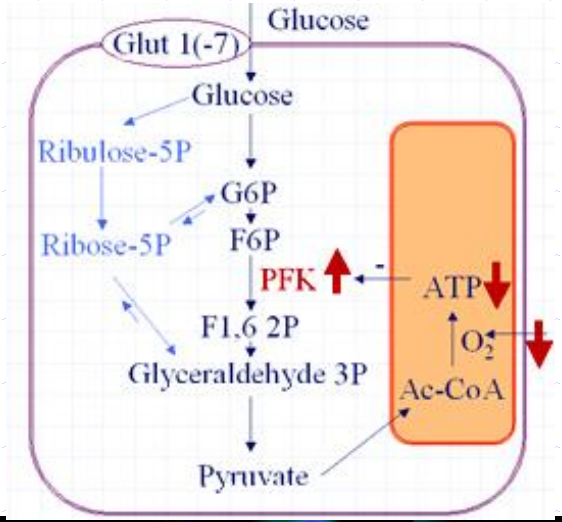
$$K_1 = \frac{C(t)}{ASC(t)} \approx \frac{\overline{C}_{Myoc\ plateau}}{ASC_{Pic\ vascu}}$$

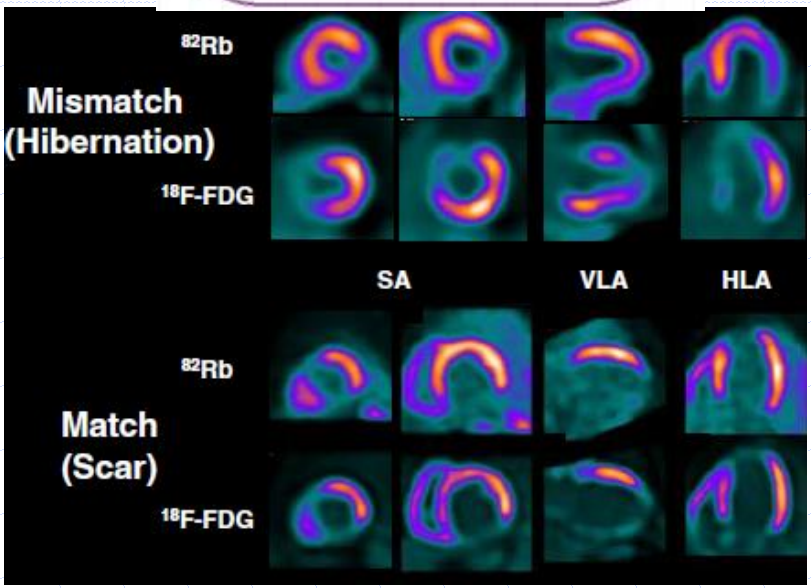


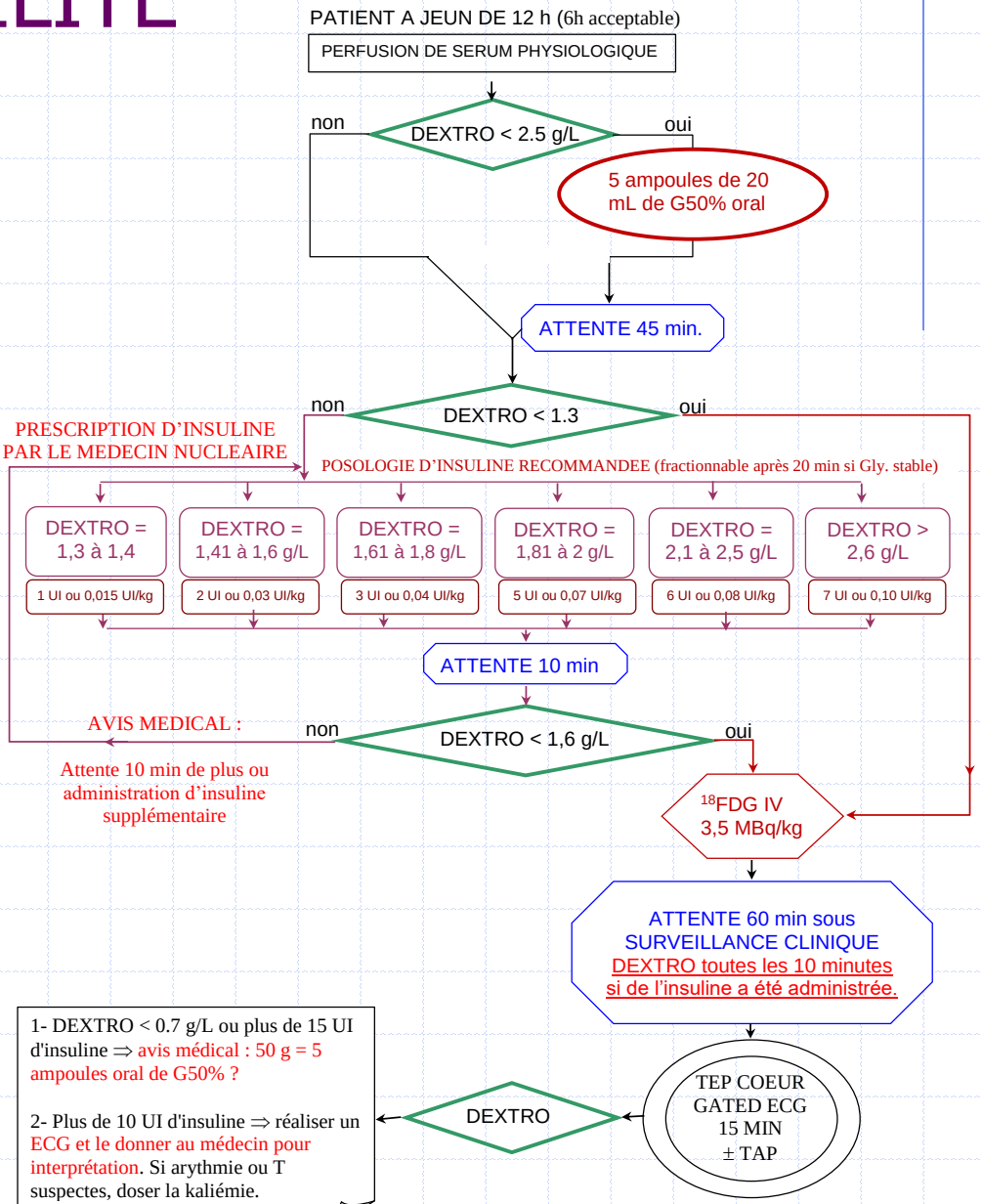
(correction EVP et contamination P→C)

JA Leppo Circ Res. 1989; 65:632-9

TEP ^{18}FDG DE VIABILITE MYOCARDIQUE

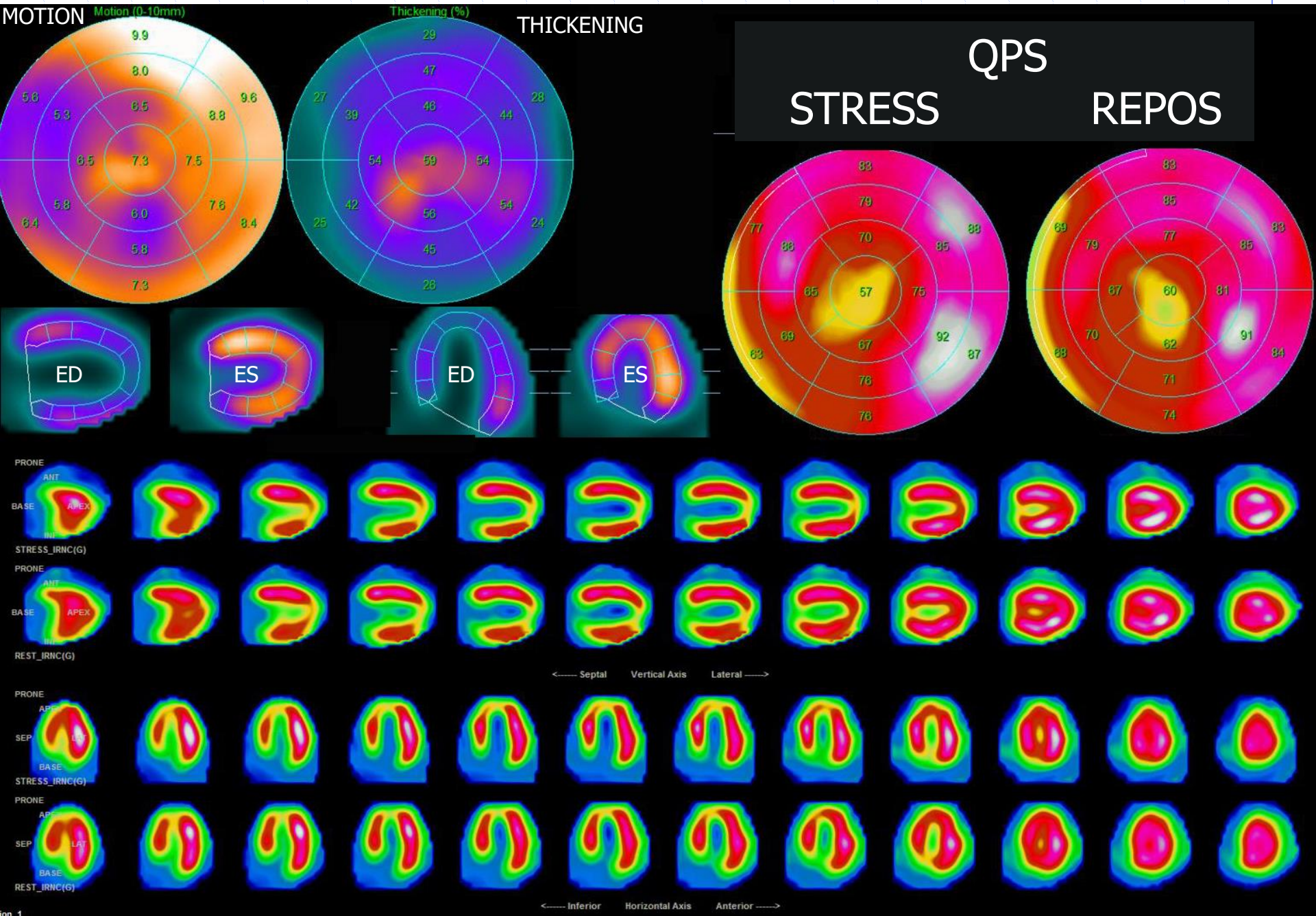




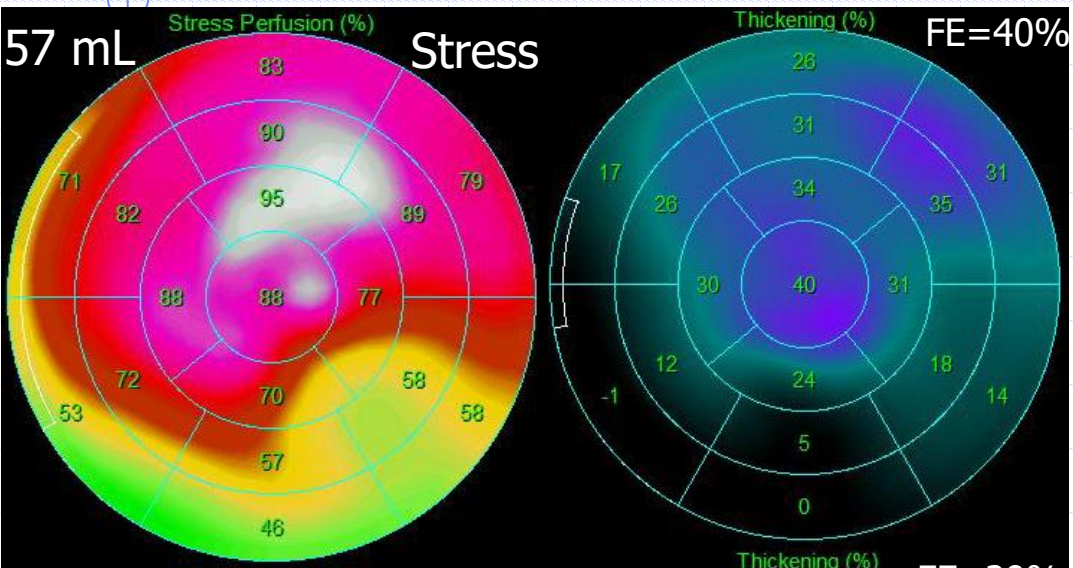


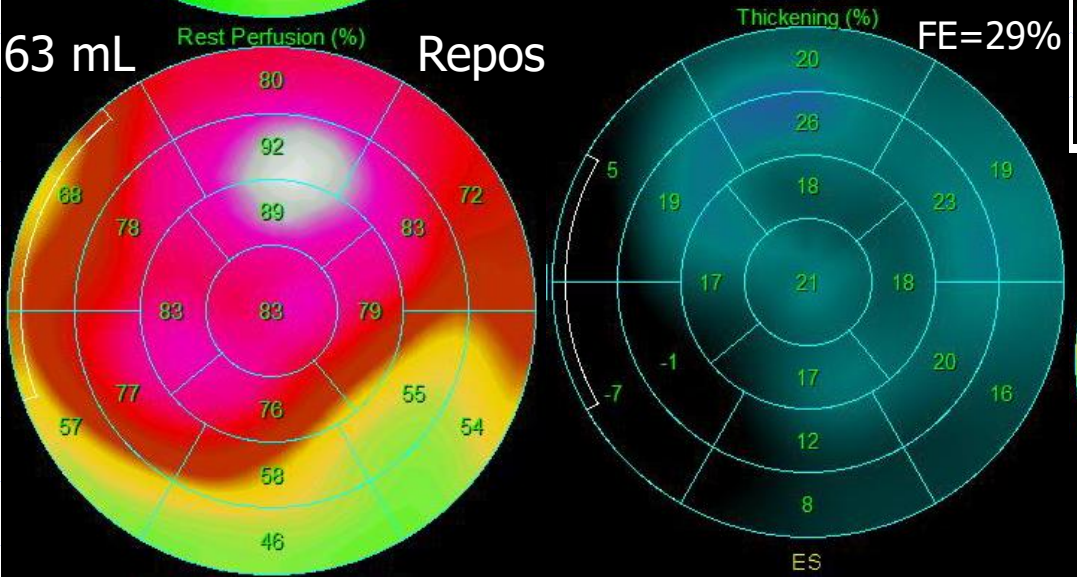
D. Mariano-Goulart. 30/11/2020. Réf. J Nucl Med 2013; 54(8): 1485-1507 et avis du Pr E Renard.

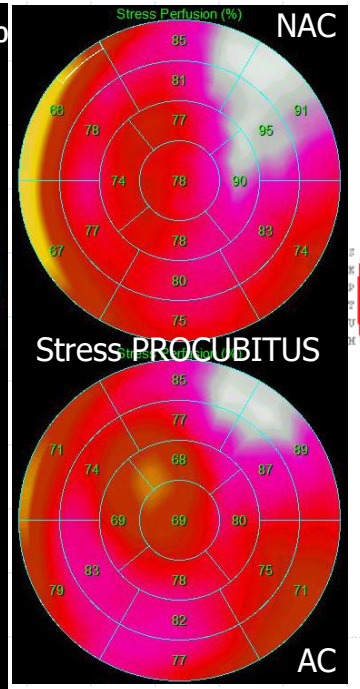
Wooclap

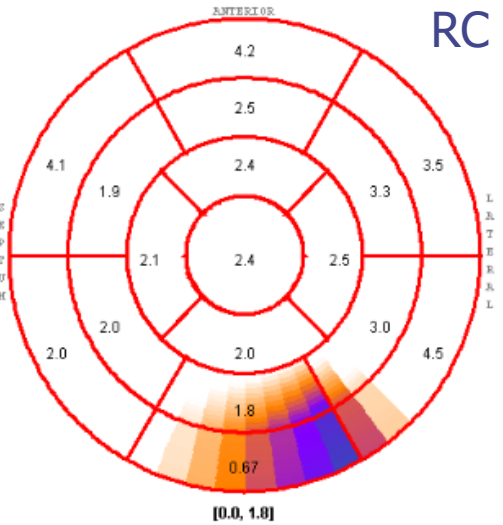

MOTION
Motion (0-10mm)
Thickening (%)
THICKENING
QPS
STRESS
REPOS
ED
ES
ED
ES
PRONE
ANT
BASE
APEX
INF
STRESS_IRNC(G)
REST_IRNC(G)
<------ Septal Vertical Axis Lateral ------>
SEP
LAT
<------ Inferior Horizontal Axis Anterior ------>

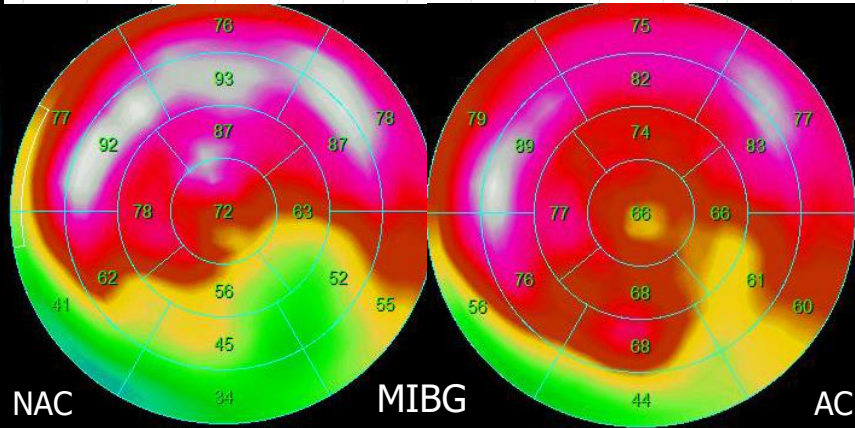
H 70 a, stents CD2, Diag1, IVA3, Q inf



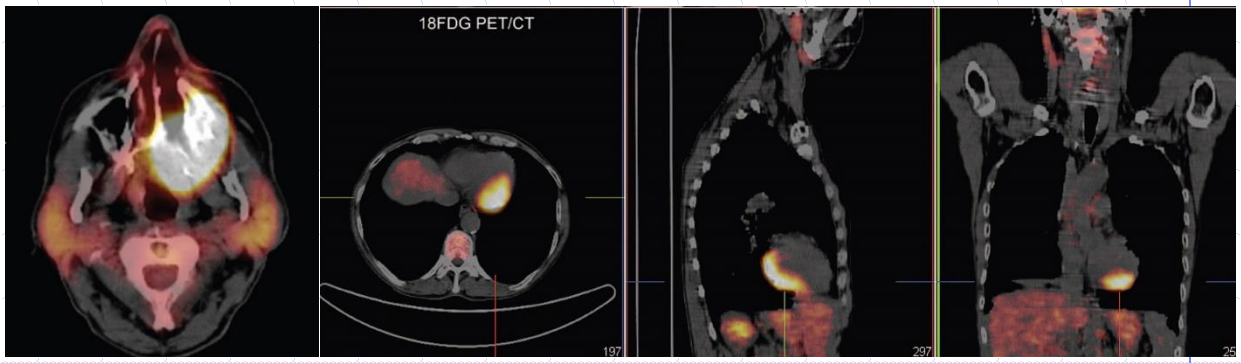


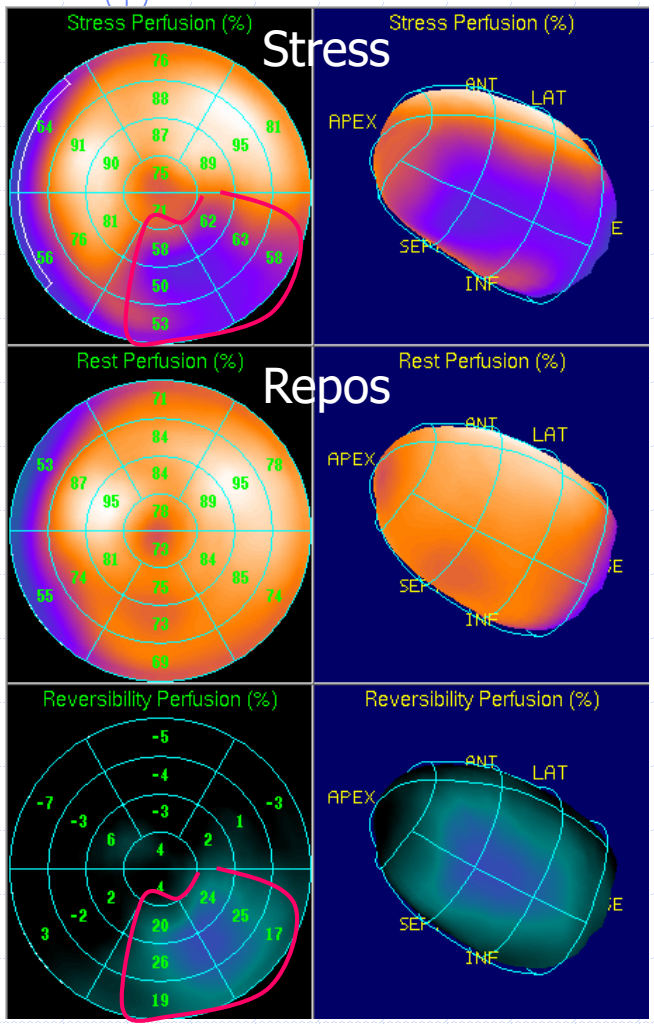


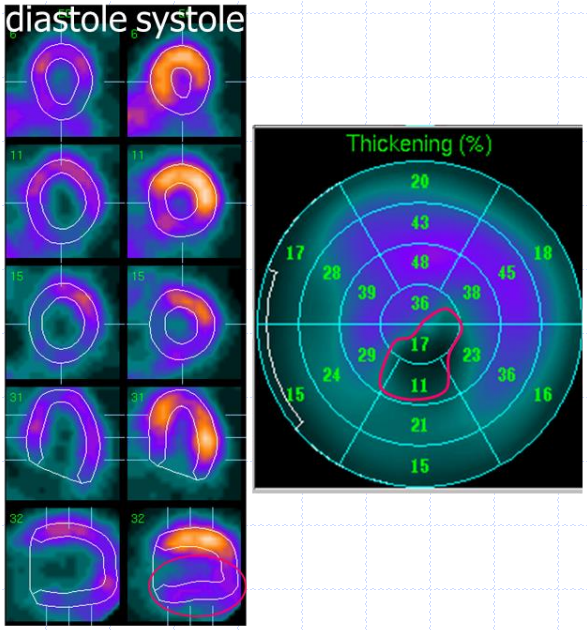


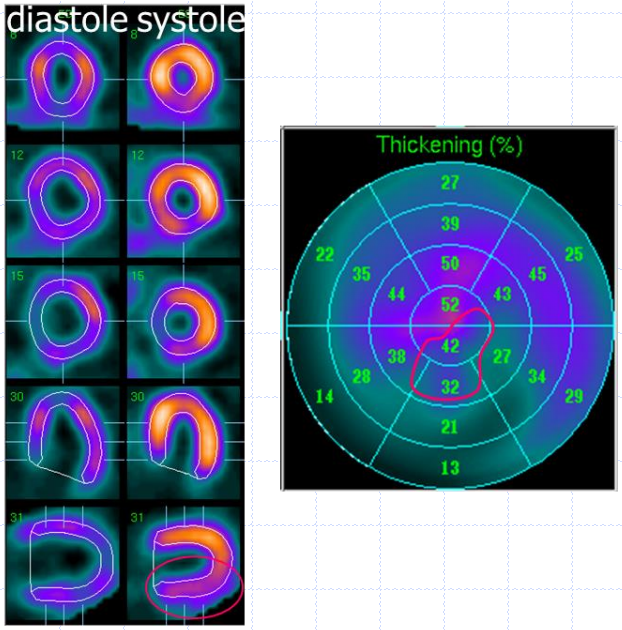


H 53 a,HIV LBGC







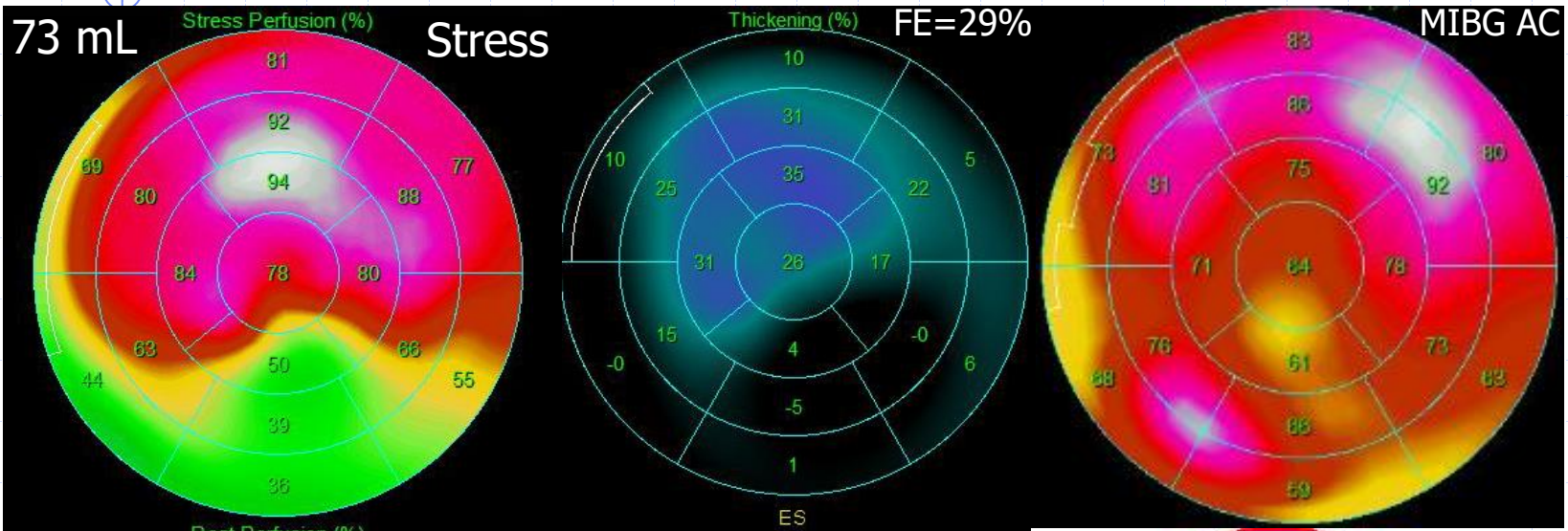


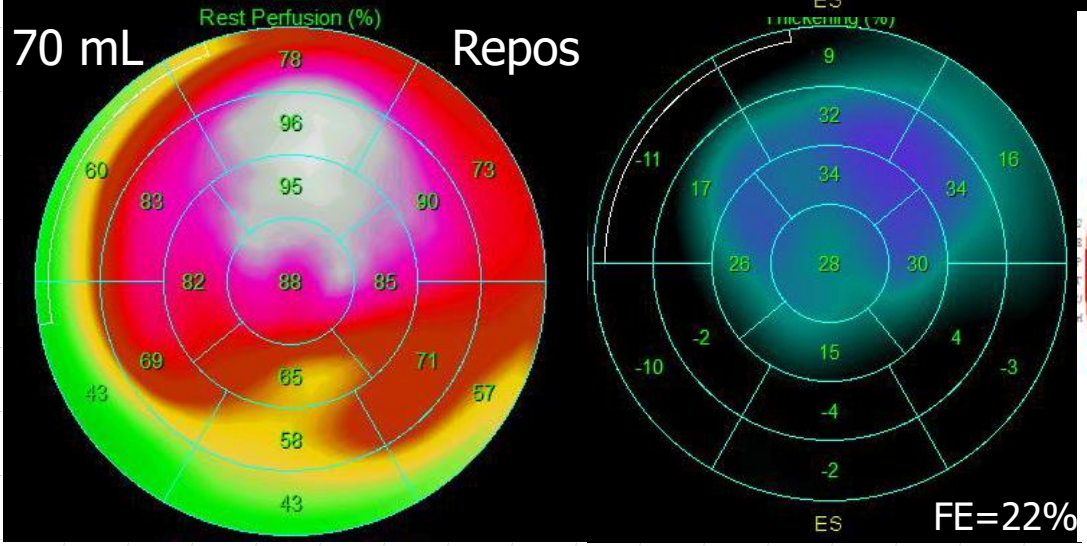
EFFORT
ES(apico-inf) = 11-17%

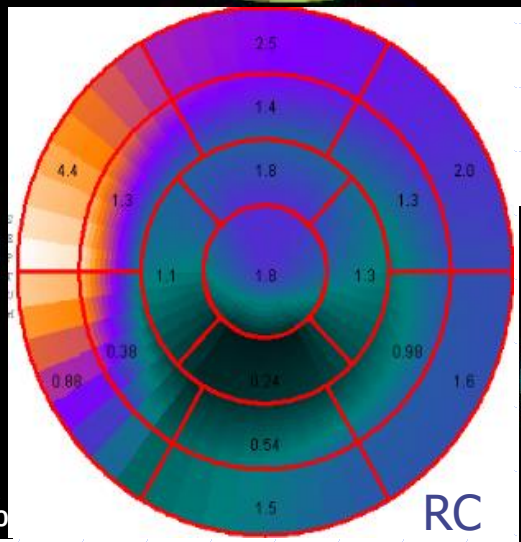
REPOS
ES(apico-inf) = 32-42 %

J Am Coll Cardiol 2002;39:991-8 - Clin Nucl Med 2009;34(10) :731-3

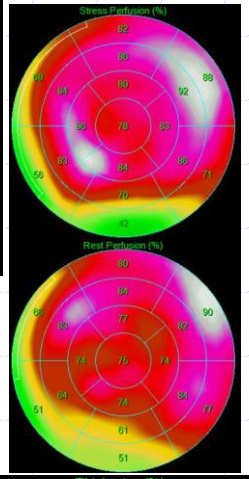
F 49 a, M6 post stents RVP, CD2, CD3

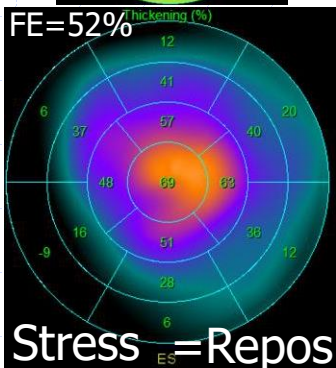




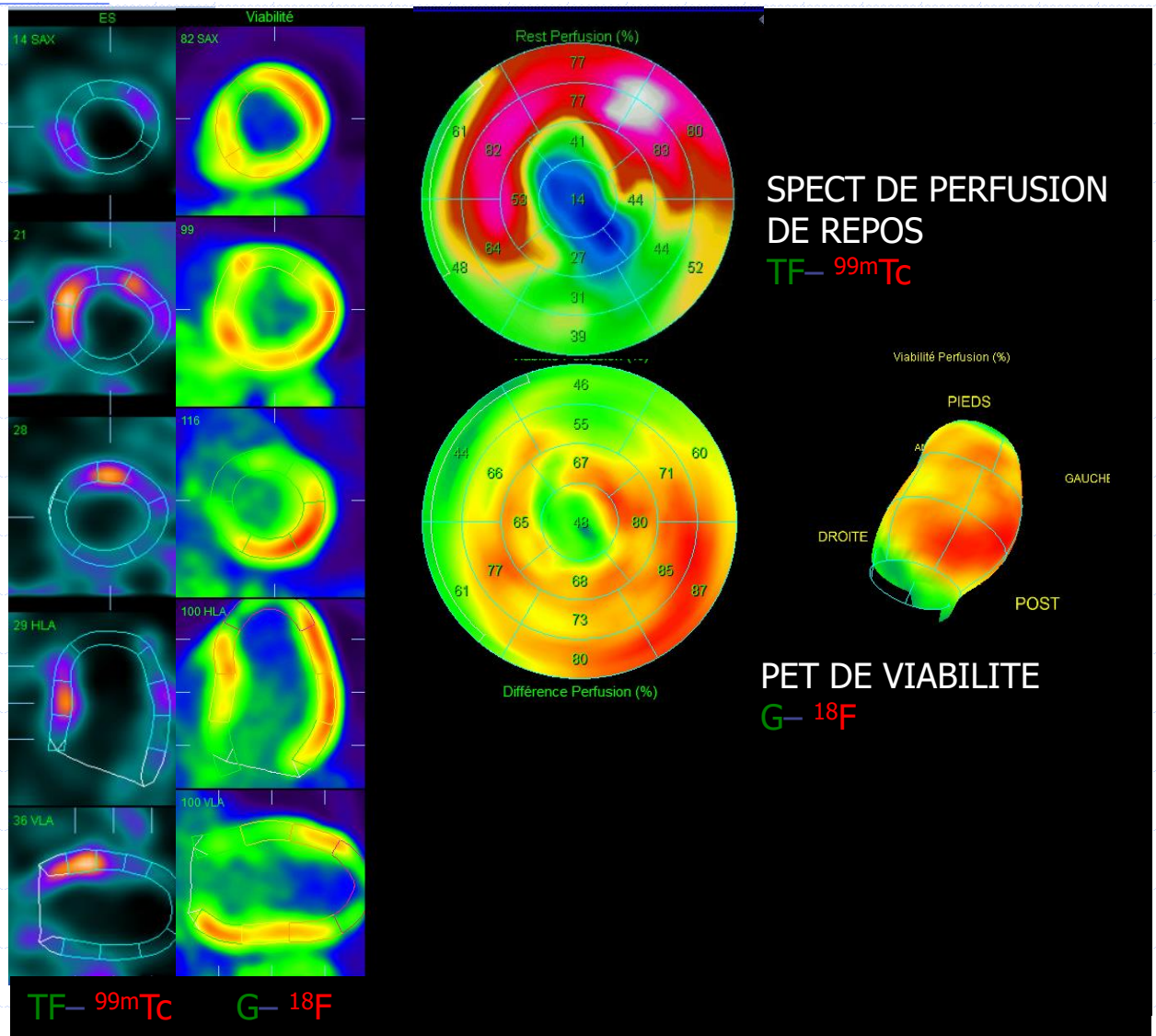


Contrôle à un an

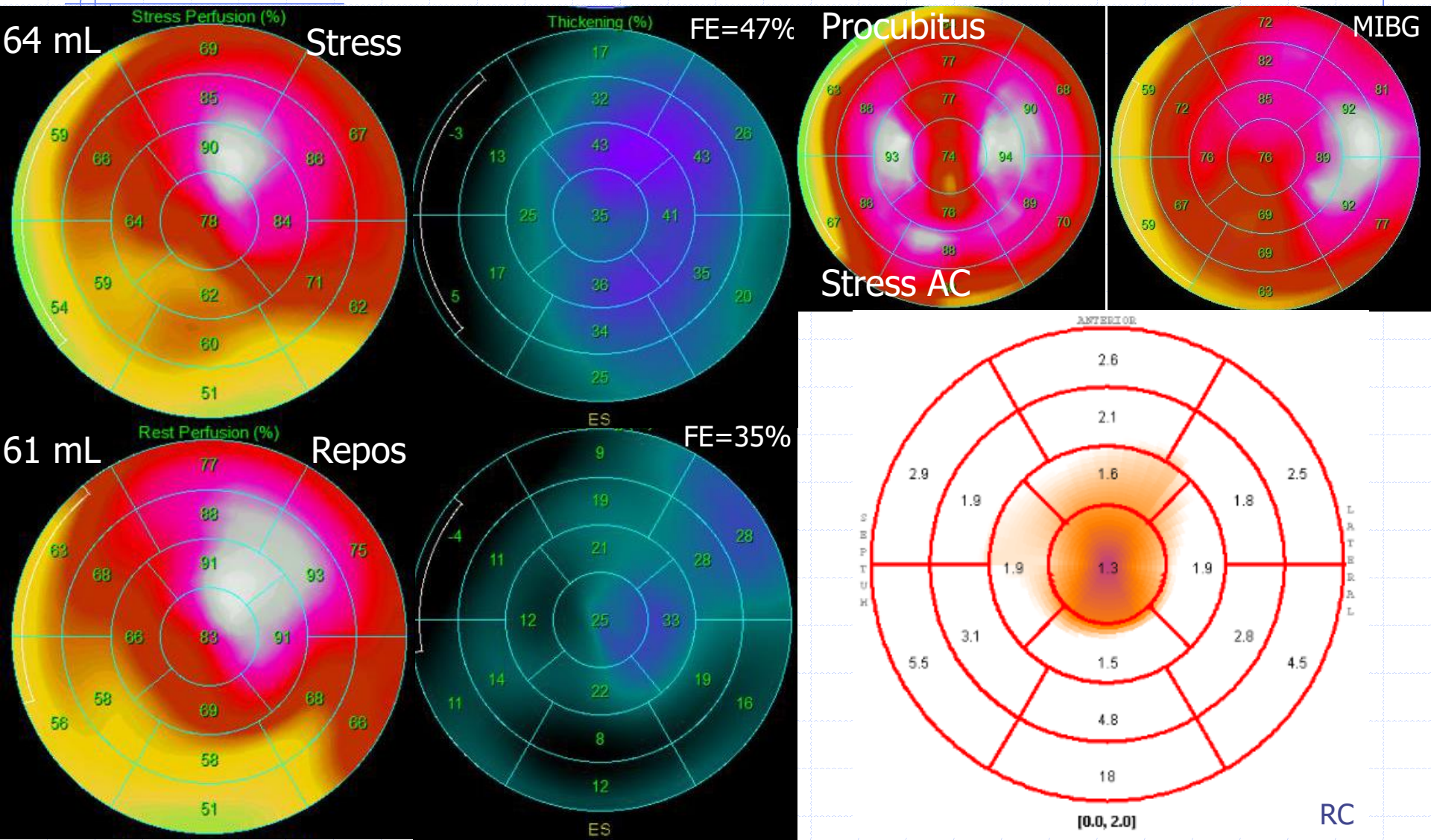




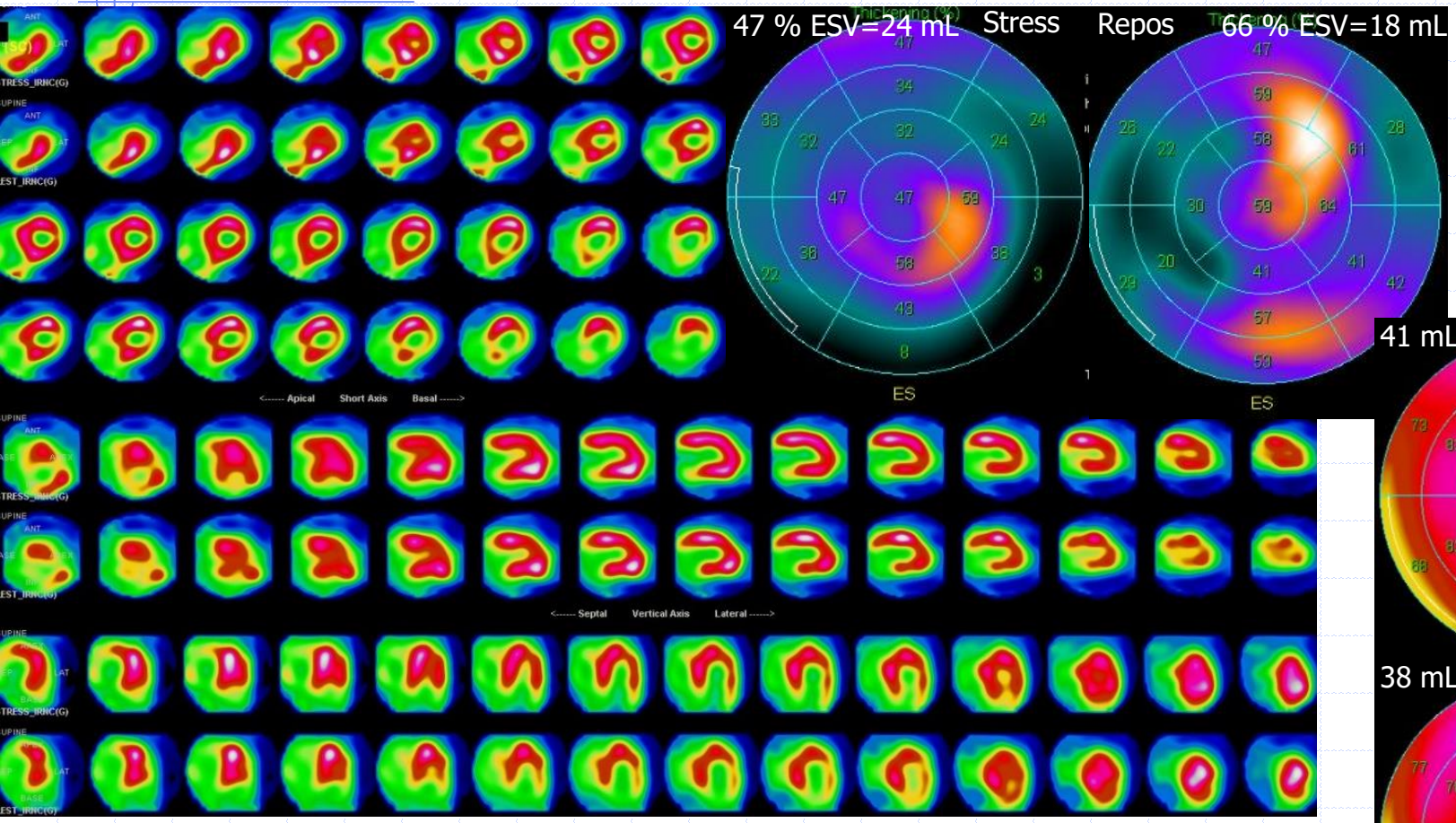
H 49a, Cx1, CD1, IVA2 occluses. Sténose Mg1, lésion TC: viabilité ?

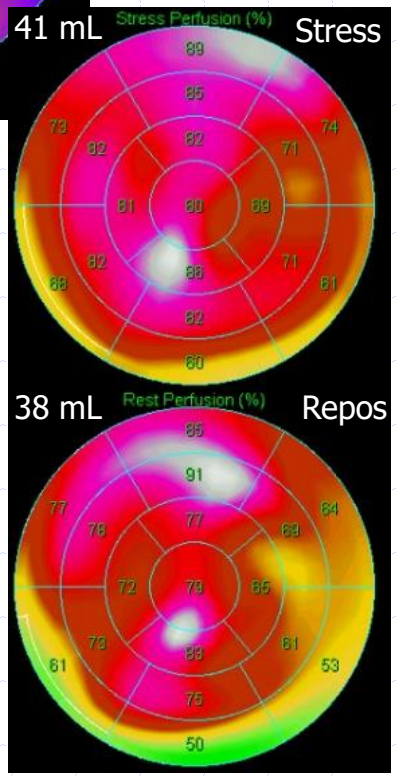


H 74 a, tabac, stent IVA1, embol IVA3

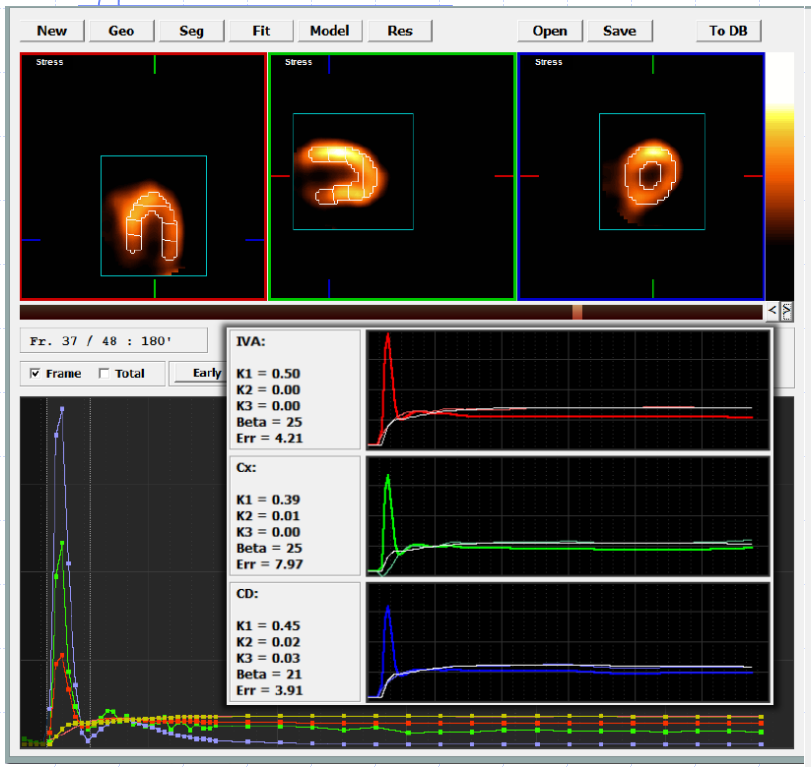


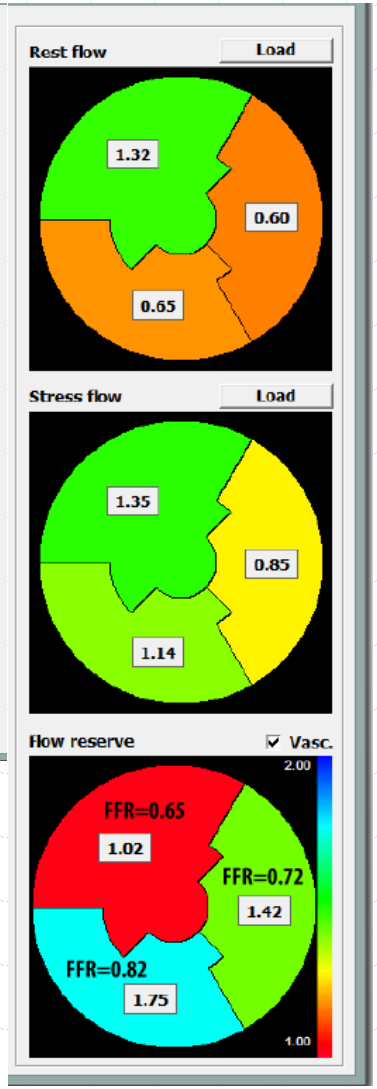
H 58 ans, tabac, DNID, LDL, IDM inf, lésions non stentées IVA2-3 et Mg1.





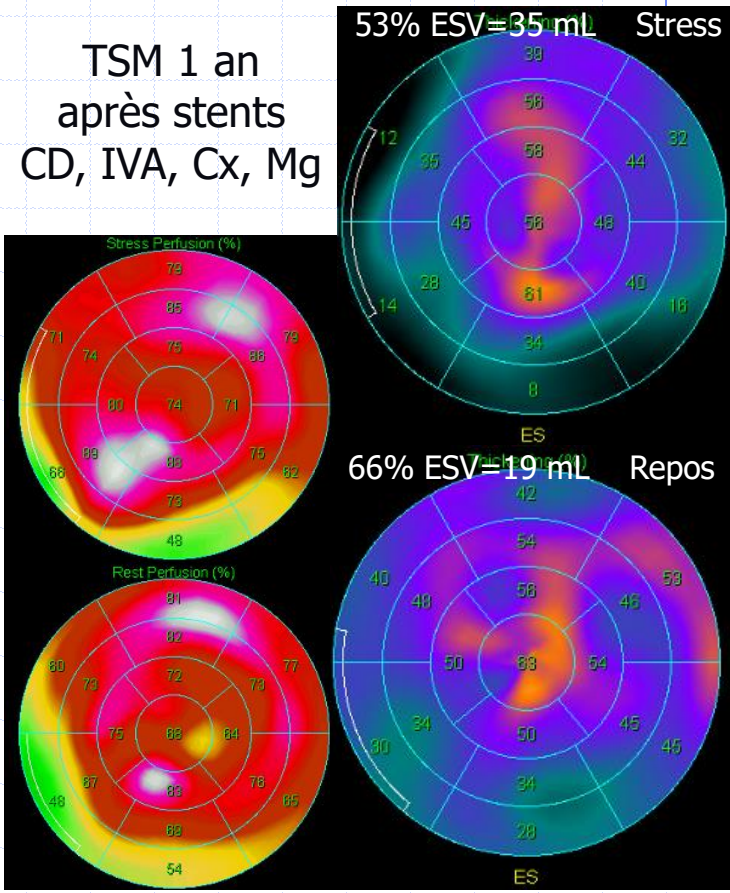
H 58 ans, tabac, DNID, LDL, IDM inf, lésions non stentées IVA2-3 et Mg1.



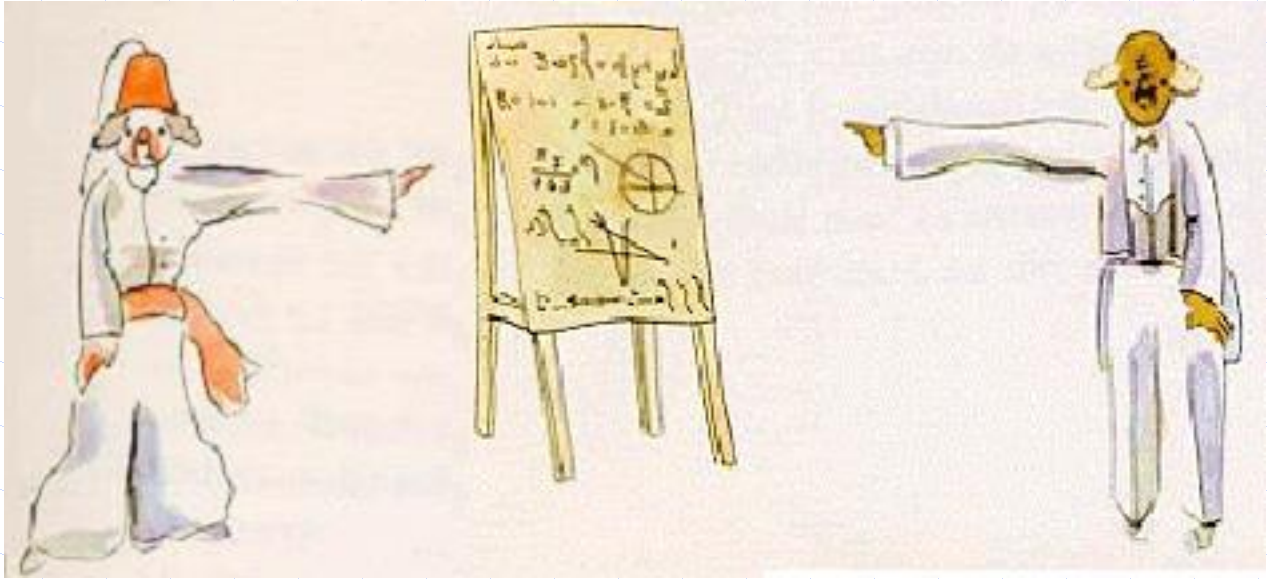


Coro:
90 % IVA 2 et IVA 3
99 % Mg 1 et 30 % Cx
CD1 stentée, perméable

TSM 1 an
après stents
CD, IVA, Cx, Mg



F Ben Bouallègue et al , J Nucl Med 2015; 56:1712-1717



Merci pour votre attention…

http:\\scinti.edu.umontpellier.fr
d-mariano_goulart@chu-montpellier.fr