Réadaptation du patient poly-vasculaire
Polyvascular patient rehabilitation

Réentraînement du coronarien polyvasculaire
Retraining the polyvascular patient with coronary artery disease

Journées Européennes de la Société Française de Cardiologie
Samedi 18 janvier

G. Bosser (Vandoeuvre les Nancy, FRANCE)
Déclaration de Relations Professionnelles

Disclosure Statement of Financial Interest

- Aucune
- None
Polyvascular patient I

- REACH registry (Coronary Artery Disease (CAD), Peripheral Arterial Disease (PAD), CerebroVascular Disease (CVD), 3 risks factors)
  - n = 68236
  - Polyvascular disease
    - PAD 60%
    - CAD 25%
    - CVD 40%
  - PolyVascular Disease (PVD)
    - Poor outcome

Polyvascular patient II

- Registries
  - Alliance. 8904 MI (70% STEMI), 66±14 years
    - PAD: claudication, peripheral vascular surgery, vascular angioplasty or amputation or documented abdominal aortic aneurysm
  - CVD: TIA or Stroke
  - Impact of polyvascular disease on baseline characteristics, management and mortality in acute myocardial infarction. The Alliance project. Meizels A et al; ALLIANCE investigators on behalf of the working group on Epidemiology of the French Society of Cardiology. Arch Cardiovasc Dis. 2010;103(4):207-14
Polyvascular patient II

- **Registries**
  - Crusade. 34 205 non STEMI, $\geq$65 years
    - PAD: ABI < 0.8
    - CVD: history of stroke
Polyvascular patient II

• **Registries**
  
  • **Alliance.** 8904 MI, 66 ± 14 years
  
  Impact of polyvascular disease on baseline characteristics, management and mortality in acute myocardial infarction. The Alliance project. Meizels A et al; ALLIANCE investigators on behalf of the working group on Epidemiology of the French Society of Cardiology. Arch Cardiovasc Dis. 2010;103(4):207-14

  • **Crusade.** 34 205 non STEMI, ≥ 65 years
  

• **CVD: particularly poor outcome**

• **Few information:** Abdominal Aortic Disease
Exercise training – coronary artery disease I

- International recommendations
  - Moderately intense endurance aerobic exercise
  - Moderately intense resistance exercise
  - Cardiac rehabilitation
- Effects of exercise training (V ADAMS)
  - Antiatherogenic effects
  - Anti-inflammatory effects
  - Effects on vascular endothelial function
  - Effects on blood clotting
  - Autonomic functional changes
  - Anti-ischemic effects
  - Antiarrhythmic effects
  - Reduction in age-related disability

Exercise training – coronary artery disease II

- Improvement
  - Quality of life
  - Morbidity
  - Mortality
- But
  - Only 1/3 of coronary patient participate in cardiac rehabilitation
  - Lower referral in polyvascular patients


Retraining the polyvascular patient with coronary artery disease

• Even more necessary! (Dr S Corone)
• Specific problems
  • PAD, Dr B Vergès
  • CVD
    • TIA = OK
    • Stroke, practical problems, low referral
  • Abdominal aortic dilation
    • Large aneurysms: Cl
    • Small aneurysms?, low referral
Stroke

- Exercise training. Is it useful?
  - Poor prognosis
    - Registries
    - 2 years. Cardiac event rate 1.5 – 5.4%
    - 5 years. Stroke mortality rate 15 – 36%. Other vascular mortality rate 24-45%
  - Neurologic sequelae
    - Deconditionning
    - Practical problems

- Recommendations

Stroke

- **EACPR, cardiac rehabilitation**
  - “Provided there are no contraindications, all heart patients with history of TIA or stroke should be encouraged to participate in exercise-based CR”
  - If possible, normal CR. But, individual basis ++

- **AHA/ASA, stroke**
  - Control of risk factors (smoking, diet, …)
  - Treatments: BP, lipids, diabetes,…
  - Moderate intensity aerobic exercise
  - “For those individuals with a disability following ischemic stroke, supervision by a healthcare professional, such as a physical therapist or cardiac rehabilitation professional, at least on initiation of an exercise regimen, may be considered”
Stroke

• Cooperation with neuro-rehabilitation team
• In the same hospital or sequential
• Team with specific competences
• Exercise, specific needs. Walking, balance
  • Walking, harness. Robotic assisted Walking
  • Recumbent cycling
  • Assisted exercise: Motomed, Movanoimo

• Isokinetic resistance
• Electrical stimulation
• Whole body vibration
Stroke, devices
Stroke

  - The effects of training on death and dependence after stroke are unclear.
  - Cardiorespiratory training reduces disability after stroke and this may be mediated by improved mobility and balance.
  - Sufficient evidence to incorporate cardiorespiratory and mixed training, involving walking, within post-stroke rehabilitation.
  - Insufficient evidence to support the use of resistance training.
  - Further well-designed trials are needed to determine the optimal content of the exercise prescription and identify long-term benefits.

- What about the patients with important disabilities
- Long-term efficiency?
- Very difficult to obtain long-term exercise
Abdominal aortic aneurysm

- USA, cohort 3.1 millions (echo + questionnaire)
- Prevalence: 1.4%, 50-84 ans, M>>>F
- 5% of sudden deaths
- Polyvascular disease
  - CAD: 26.7%
  - CVD: 22.1%
  - PAD: 12.6%

- Risk of rupture increases with diameter
  - AAA > 6 cms, 10 – 20 % rupture within 12 months
  - Rate of growth, 2.6 mm/ys, increases with diameter
  - Surgery > 5-5.5 cms
Abdominal aortic aneurysms

- **Coronary disease**
  - Cardiac rehabilitation is indicated (CAD + PAD)
  - Is it
    - Feasible?
    - Useful?

- **Exercise**
  - Large, > 5-5.5 cm: contra-indication
  - Small, 3 – 5 cm:
    - Possible
    - But no information in the recommendations!
Small abdominal aortic aneurysms

- **Exercise testing**
  - **Low complication rate.**
    - Small AAA (3-5cms). n=306, 72+-8 years. No serious events
Small abdominal aortic aneurysms

- **Treatment**
  - ACEI/ARB usually considered as useful
  - Beta-Blocker (CAD, no proven effect on growth)
  - Statins
- **Ongoing protocols**
  - Beta-Blocker
  - ACEI
  - Exercise
  - Doxycyclin
Small abdominal aortic aneurysms

• **Maximal BP ?**
  • Thoracic aortic aneurysm, < 160 mmHg
  • Abdominal aortic aneurysms
    • No information in the recommendations
    • < 160 mmHg ?, <140 mmHg at AT1 ?
Small abdominal aortic aneurysms

- Exercise training in patients with abdominal aortic aneurysm
  - Is it useful and safe in this subset of polyvascular patient?
  - Largest study, n= 140, small AAA (<5.5 cm), n=72 training, n= 68 usual care
  - In-House and home training up to 3 years, moderate exercise
  - Mean duration 23.4 +- 9.6 months
  - Increase in AT, peak VO2
  - **No adverse events, no excessive growth rate**

- Improvement in fitness is related with a better post-operative outcome.
  - AT < 10 ml/Kg/min, increase post-op morbity
Conclusion

- Coronary polyvascular patient
  - Have poor outcome (CVD ++)
  - Deserves specific management
- Interest of cardiac rehabilitation +++
- Even in
  - Stroke (neuro-rehabilitation)
  - Abdominal aortic aneurysms
- Exercise training is usually
  - Feasible
  - Safe
  - Should be individualized