Incidence, diagnostic methods and evolution of left-ventricular thrombus for patients with anterior myocardial infarction and low left-ventricular ejection fraction: a prospective multicenter study

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Objective and Methods

Background

- Cardiac Tamponade (CT) occurs in about 1% of patients after Cardiac Surgery:
  - 30-50 % before post-op day 7: at Hospital
  - 50-60% after post-op day 7:
    - often at home: very high risk

Objective

- To determine predictive factors for late CT (after post-op day 7) in order to select patients at risk
  - Who should benefit from a closer follow-up

The POPE study

- **Objective**: to assess whether the NSAID diclofenac was effective in reducing post operative pericardial effusion volume.
- **Design**: multicenter, randomized, double-blind, placebo-controlled study
- **Setting**: five post operative cardiac rehabilitation centers (POCRC).
- **Patients**: 196 patients at high risk of tamponade
- **Treatment administration**: 14 days

Centers and Investigators

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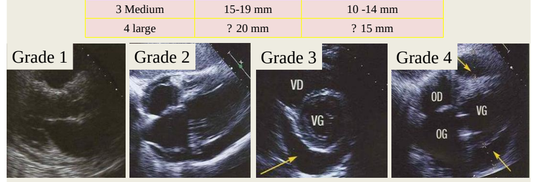
Quantification of post operative pericardial effusion

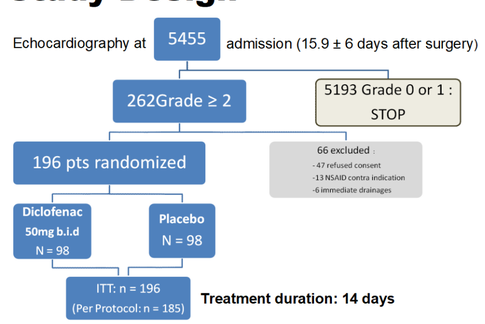
Echocardiographic classification

Grade	Loculated	Circumferential
0	0	0
1 Small	< 10 mm	0
2 Moderate	10-14 mm	< 10 mm
3 Medium	15-19 mm	10 -14 mm
4 large	? 20 mm	? 15 mm



- **Inclusion criteria**:
  - Persistent pericardial effusion ≥ grade 2 on the echocardiography performed at admission in POCRC (8 to 30 days after cardiac surgery)

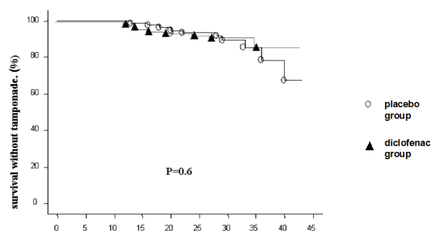
Study Design



Finally, 20 patients had a late CT 22.5 ± 8.7 days after surgery

Results: Predictive Factors for Late Cardiac Tamponade

NSAID (diclofenac) administration did not modify the late CT risk

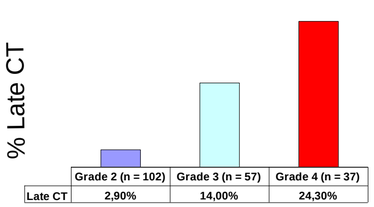


Influence of the oral anticoagulants

- To receive a VKA was not a risk factor:
  - 10.5% of the patients receiving a VKA and 10.5% of the patients not receiving a VKA suffered from a late CT
- However, over-anticoagulation was associated with late CT risk

	CT Group (n= 20)	Non CT Group (n= 176)	p
- Mean INR at inclusion	3.25 ± 1.03	2.56 ± 1.0	0.05
- INR > 2.5 at inclusion	88.9%	47.8%	0.02

The main CT Predictive Factor: The initial Echographic Grade



Initial echocardiographic grade

Influence of diabetes

- 22% of diabetic patients suffered from a late CT versus 8% of non diabetic patients (p= 0.03)
- 35% of patients with a late CT versus 16.6% of the patients without lat CT were diabetic (p= 0.04)

Baseline characteristics non related with the occurrence of a late CT

	Total Population
Mean Age (SD), years	63.5 (12)
BMI (SD), kg/m^2	26.0 (3.8)
Male	80%
Delay surgery-inclusion (SD),	15.9 (5.1)
Surgery performed - CABG - Ao Valve Replacement - Mitral Valve Surgery - Root Aorta Surgery	 58.5% 33.5% 15.5% 9%
LVEF	57.7 (5.1) %
Aspirin	73%

	Total Population
Mean CRP (SD), mg/l	40.3 (38.2)
Creatininemia (SD), µmol/l	92.6 (22.2)
Haemoglobinemia (SD), g/dl	10.7 (1.2)
Circumferential VS loculated effusion Right sided vs left sided effusion	29.5% / 70.5% 43 (31%) / 95 (69%)
Atrial fibrillation	16.3 %

Conclusion

- Late cardiac tamponades are frequent in patients having a moderate (Grade 2) to large (Grade 4) pericardial effusion persisting more than 7 days after Cardiac surgery.
- Baseline Pericardial effusion, excessive oral anticoagulation and diabetes are correlated with the risk of development of a late CT.