

Differences in risk factors of PM/ICD local infection and lead dependent infective endocarditis in patients qualified for transvenous lead extraction

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Aim of the study

To evaluate the risk factors of isolated local infection (LI) and isolated lead dependent infective endocarditis (LDIE) in patients referred for transvenous lead extraction (TLE).

Isolated local infection - definition

Local infection of device pocket without the presence of either major or minor Duke criterion for infective endocarditis:

- Vegetations,
- Positive blood cultures,
- Pulmonary embolisation,
- Fever >38 C degrees

Local infections - examples

Local infection



Skin fistula with purulent leak



„Dry” fistula

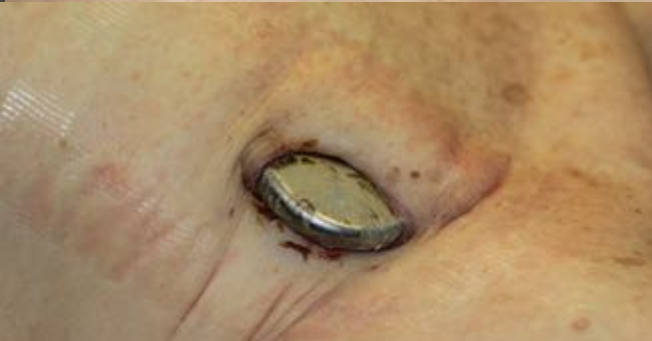


Ulceration of the skin over device with local inflammatory infiltrate

Local infections - examples



Skin fistula with local inflammatory infiltrate



„Dry” skin fistula



Fistula with total device protrusion

Isolated lead-dependent infective endocarditis - definition

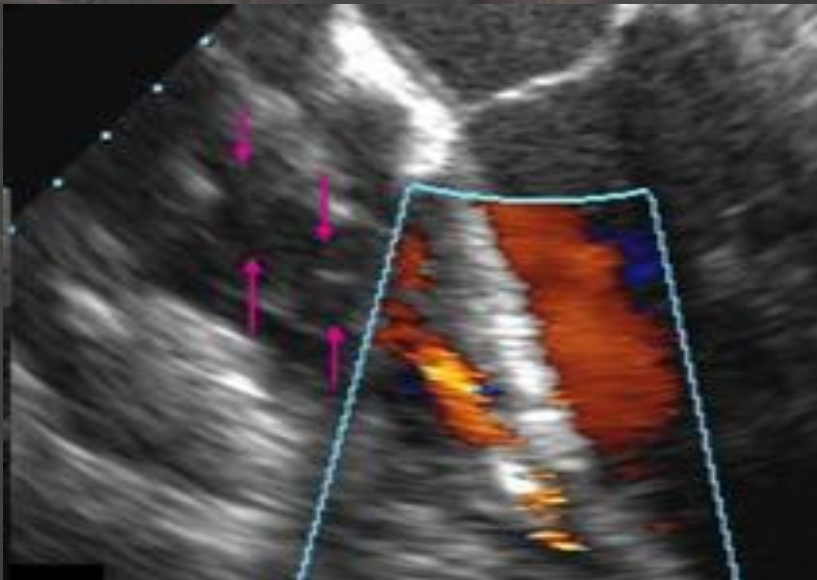
- At least one major with one minor Duke criteria without local signs of infection:
 - Endocardial lead presence with vegetations and fever $>38^{\circ}\text{C}$ degrees.
 - Endocardial lead presence with pulmonary embolisation and fever $>38^{\circ}\text{C}$ degrees
 - Endocardial lead presence with more than two positive blood cultures with characteristic for IE bacteria and fever $>38^{\circ}\text{C}$ degrees

Isolated LDIE - examples

LDIE



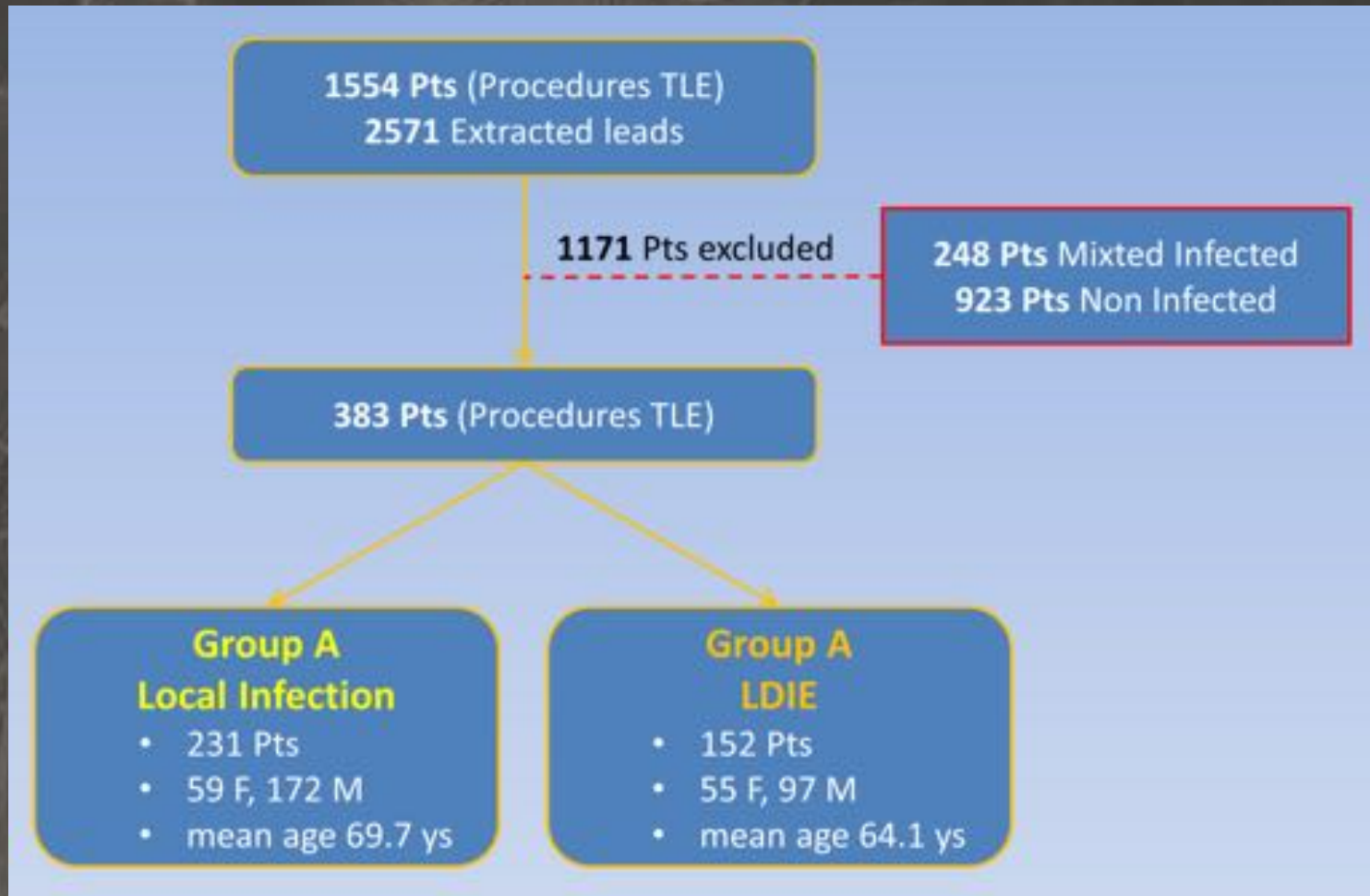
TTE- visible vegetation 1.5 x2.1 cm with recurrent pulmonary infections and pulmonary embolisation



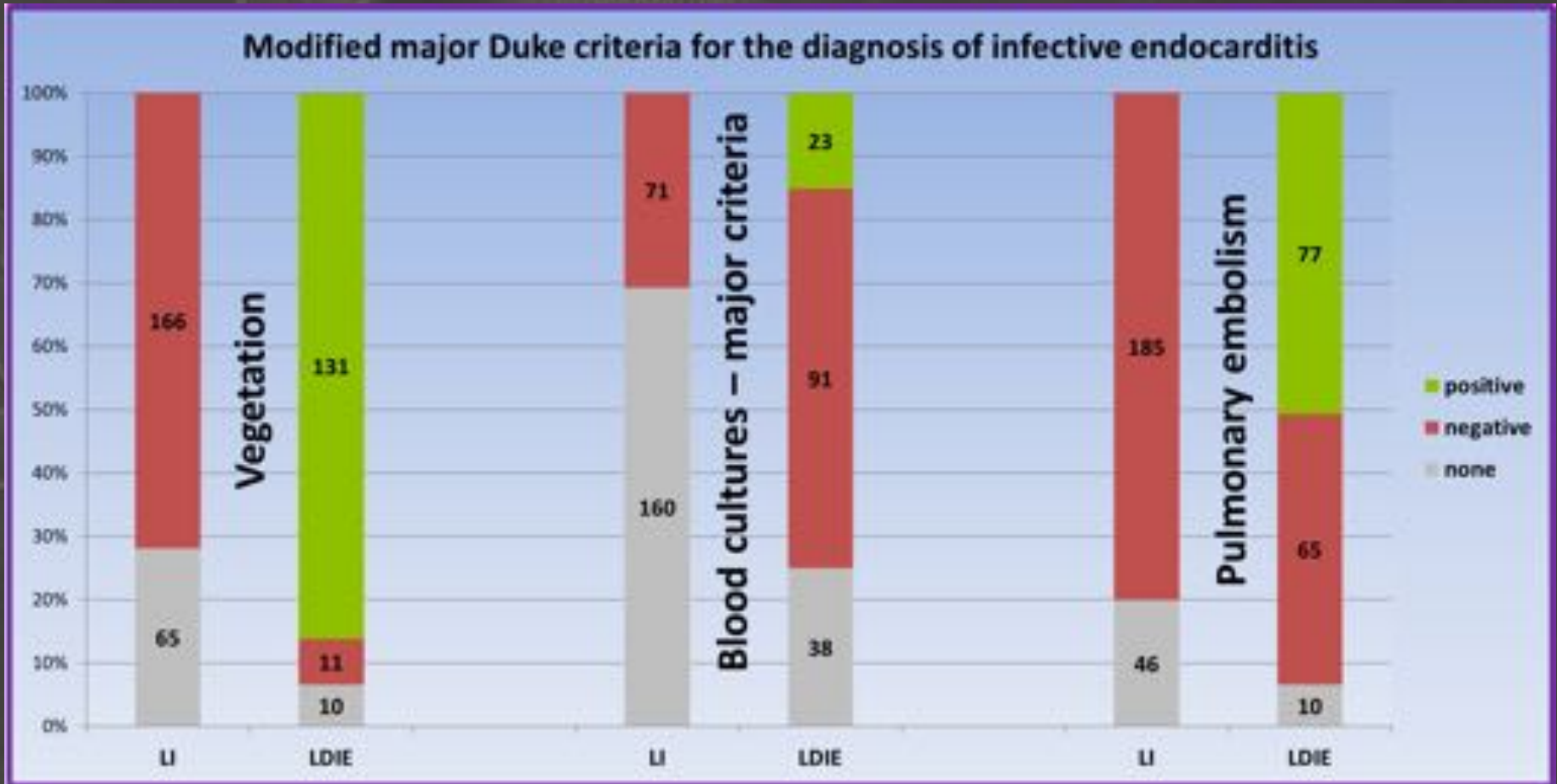
TEE- visible vegetation-intracardiac abscess with septic fever

Methods

Retrospective analysis of 1554 TLE procedures with 2571 extracted leads.

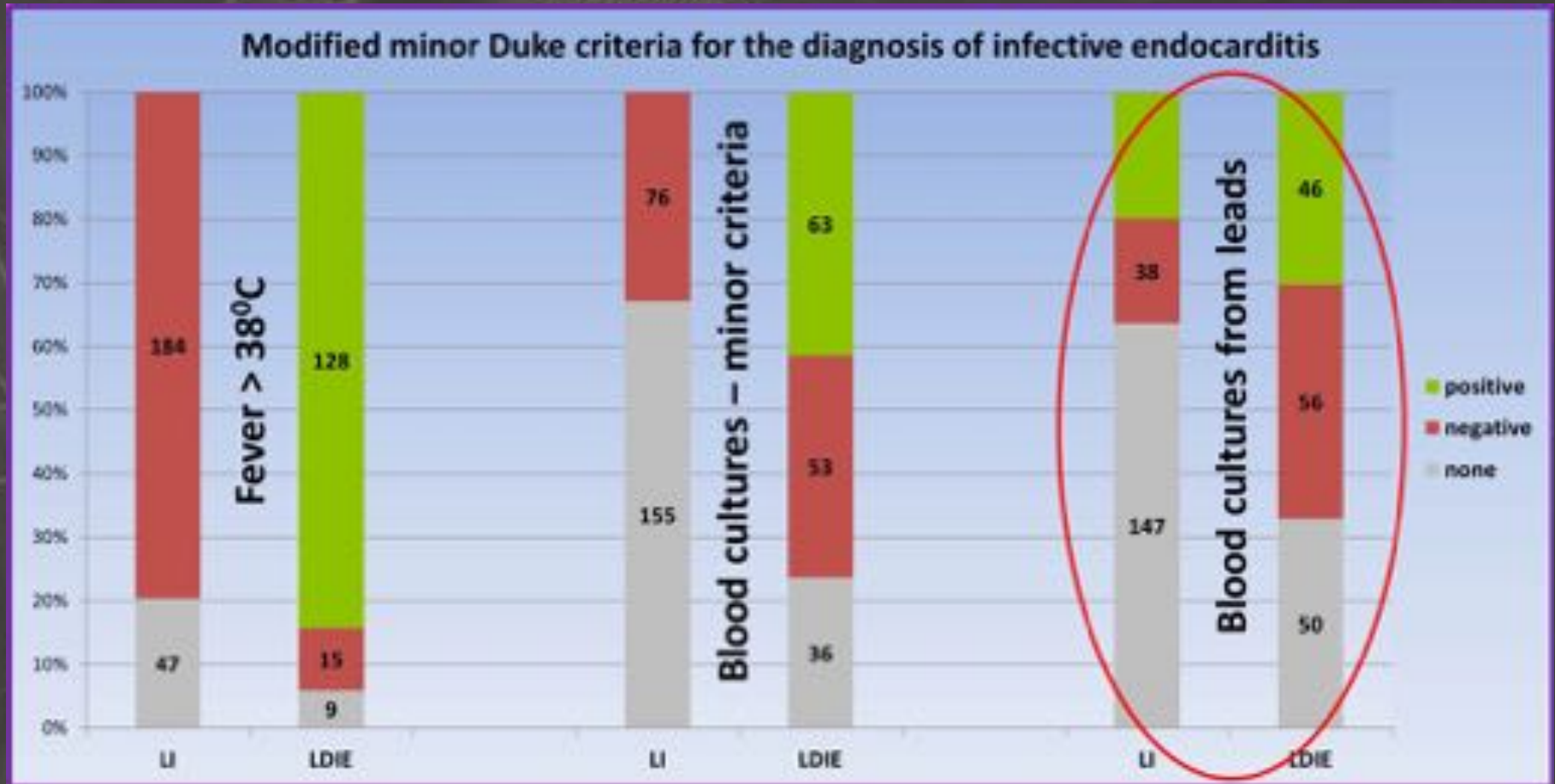


Methods-limitations



White parts of the figures = lack of data

Methods-limitations



White parts of the figures = lack of data

Methods

- The remaining parameters were assessed: the patient's age and gender,
- number of device-related procedures performed before TLE,
- lead number and dwell -time,
- number of non-functional leads.
- Diabetes and renal failure were assessed in the part of population with complete data in the database.

Results

Indication for TLE	LI Group A	LDIE Group B	TOTAL number of infective indications	P value A vs B
Number of patients	231	152	631	
Female patient	59/231 (25.4%)	55/152 (36.2%)	182/631 (28.8%)	P=0.0651
Age of patients [mean]	69.7±12.9	64.1±15.6	67.4±14.0	P=0.0007
Number of leads in the heart	2.00±0.75	2.19±0.94	2.09±0.81	P=0.0688
Age of leads [mean]	71.4±52.3	86.5±56.9	76.3±53.4	P=0.0201

Results

Indication for TLE	PI Group A	LDIE Group B	TOTAL number of infective indications	P value A vs B
Number of device-related procedures before TLE	2.23±2.90	2.20±1.48	2.24±2.07	P=0.9352
Number of non- functional leads	0.23±0.57	0.33±0.70	0.29±0.65	P=0.2384
Diabetes #	38/198 (19.2%)	34/139 (24.5%)	124/582 (21.3%)	P=0.5082
Renal failure ##	10/198 (5.0%)	11/139 (7.9%)	34/580 (5.9%)	P=0.4935

incomplete information in 49 pts (33 pts PI, 13 pts LDIE)

incomplete information in 51 pts (33 pts PI, 13 pts LDIE)

Picture of the patient with LI



Older patient – mean 70 years old; most frequently male ($\frac{3}{4}$ of group A - males)

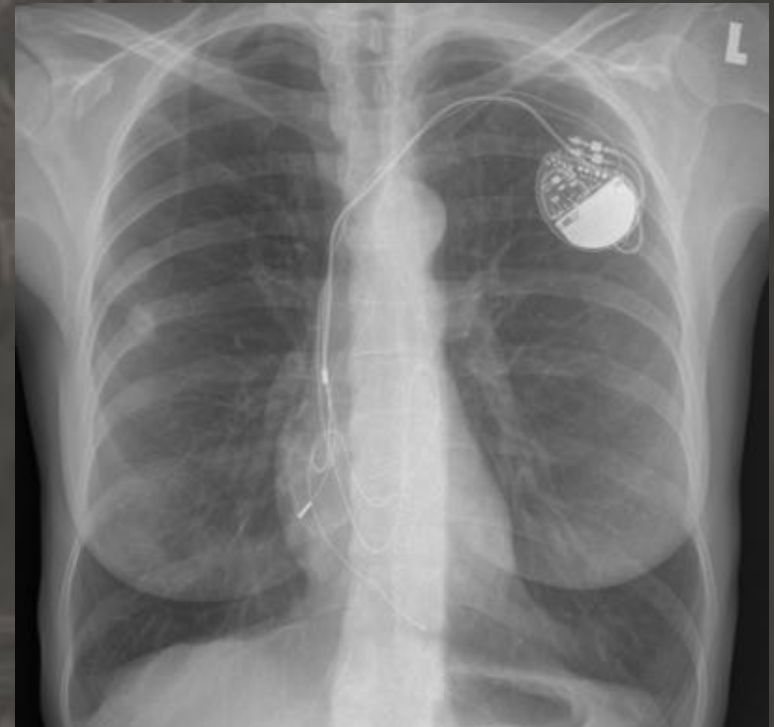
Shorter lead dwell time – mean 6 years for one lead; mean of two leads.



Picture of the patient with LDIE



younger patient - mean 64-years old
smaller difference in gender (more than
1/3 women in group B)



longer lead dwell time - mean 7
years for a lead; more than 2 leads
for one patient.

Presence of lead loop in the heart
and lead abrasion - phenomenon non
analysed in this work

Conclusions

- Two variables: patient's age and lead dwell time correlated with the PM/ICD infection type.
- Patients with isolated LI were significantly older and had shorter lead dwell time in comparison with patients with isolated LDIE.

Thank you for attention

