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The Syntax Score in 'Real Life' Interventional Cardiology Practice.

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Background:

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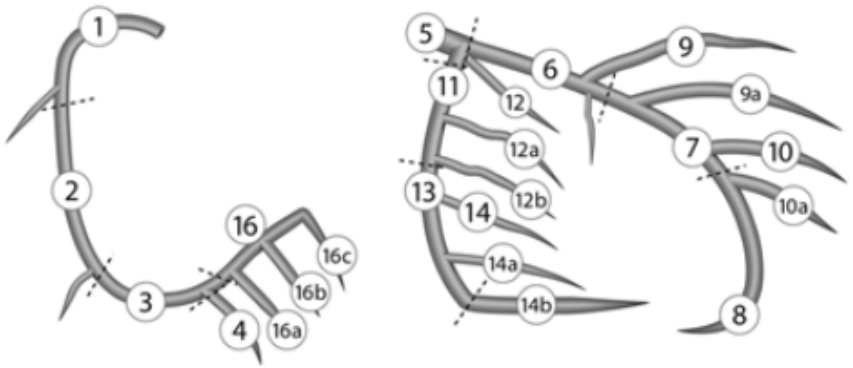
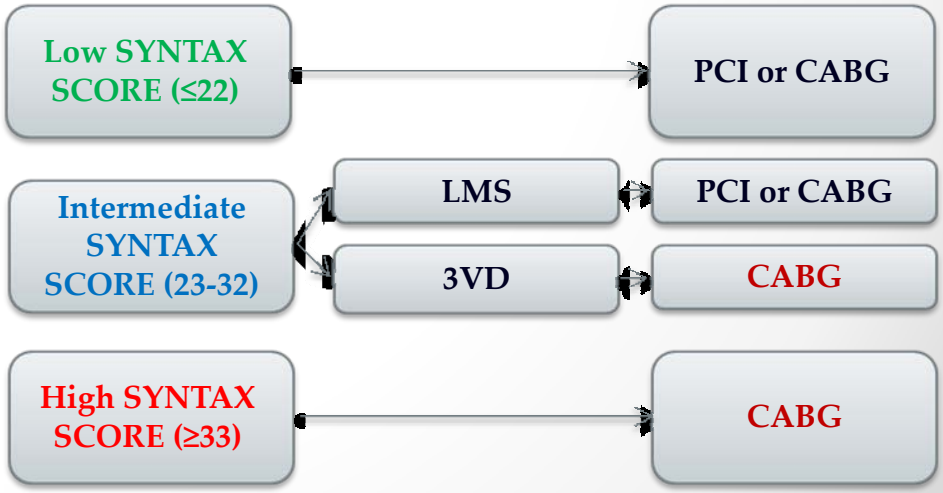
- The SYNTAX score aids in choosing the preferred mode of revascularization in a specific patient.

- The SYNTAX score has been shown in clinical trials to be correlated with MACCE in patients undergoing surgical/ percutaneous revascularization for patients with LM/3VCAD.



SYNTAX = SYNergy between PCI with TAXUS™ and Cardiac Surgery

SYNTAX SCORE



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- The 2010 ESC guidelines on coronary revascularization were the first to incorporate the SYNTAX score in the decision making process when assigning a patient for surgical or percutaneous revascularization.

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ESC/EACTS GUIDELINES

Table 3 Recommended risk stratification scores to be used in candidates for percutaneous coronary intervention or coronary artery bypass grafting

Score	Calculation	Number of variables used to calculate risk		Validated outcomes	Class
		Clinical	Angiographic		PCI
EuroSCORE	www.euroscore.org/calc.html	17	0	Short- and long-term mortality	IIb B
SYNTAX score	www.syntaxscore.com	0	11 (per lesion)	Quantify coronary artery disease complexity	IIa B
Mayo Clinic Risk Score	(7, 8)	7	0	MACE and procedural death	IIb C
NCDR CathPCI	(5)	8	0	In-hospital mortality	IIb B
Parsonnet score	(9)	16	0	30-day mortality	—
STS score[d]	http://209.220.160.181/STSWebRiskCalc261/	40	2	Operative mortality, stroke, renal failure, prolonged ventilation, deep sternal infection, re-operation,	—

2011 ACCF/AHA/SCAI Guideline for Percutaneous Coronary Intervention

2011 ACCF/AHA/SCAI PCI Guideline

December 6, 2011:e000–00

Table 2. Revascularization to Improve Survival Compared With Medical Therapy

Anatomic Setting	COR	LOE	References
UPLM or complex CAD			
CABG and PCI	I—Heart Team approach recommended	C	(14–16)
CABG and PCI	IIa—Calculation of STS and SYNTAX scores	B	(13,14,17–22)
UPLM*			
CABG	I	B	(24–30)
PCI	IIa—For SIHD when *both* of the following are present: • Anatomic conditions associated with a low risk of PCI procedural complications and a high likelihood of good long-term outcome (e.g., a low SYNTAX score of ≤22, ostial or trunk left main CAD) • Clinical characteristics that predict a significantly increased risk of adverse surgical outcomes (e.g., STS-predicted risk of operative mortality ≥5%)	B	(13,17,19,23,31–48)
	IIa—For UA/NSTEMI if not a CABG candidate	B	(13,36–39,44,45,47–49)
	IIa—For STEMI when distal coronary flow is TIMI flow grade <3 and PCI can be performed more rapidly and safely than CABG	C	(33,50,51)
	IIb—For SIHD when *both* of the following are present: • Anatomic conditions associated with a low to intermediate risk of PCI procedural complications and an intermediate to high likelihood of good long-term outcome (e.g., low-intermediate SYNTAX score of <33, bifurcation left main CAD) • Clinical characteristics that predict an increased risk of adverse surgical outcomes (e.g., moderate-severe COPD, disability from prior stroke, or prior cardiac surgery; STS-predicted risk of operative mortality >2%)	B	(13,17,19,23,31–48,52)
	III: Harm—For SIHD in patients (versus performing CABG) with unfavorable anatomy for PCI and who are good candidates for CABG	B	(13,17,19,24–32)
3-vessel disease with or without proximal LAD artery disease*			
CABG	I	B	(26,30 53–56)
	IIa—It is reasonable to choose CABG over PCI in patients with complex 3-vessel CAD (e.g., SYNTAX score >22) who are good candidates for CABG.		(32,46,56,71,72)
PCI	IIb—Of uncertain benefit	B	(26,46,53,56,82)

2010 ESC guidelines:

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Subset of CAD by anatomy	Favours CABG	Favours PCI	Ref.
1VD or 2VD - non-proximal LAD	IIb C	I C	—
1VD or 2VD - proximal LAD	I A	IIa B	30, 31, 50, 51
3VD simple lesions, full functional revascularization achievable with PCI, SYNTAX score ≤22	I A	IIa B	4, 30–37, 53
3VD complex lesions, incomplete revascularization achievable with PCI, SYNTAX score >22	I A	III A	4, 30–37, 53
Left main (isolated or 1VD, ostium/shaft)	I A	IIa B	4, 54
Left main (isolated or 1VD, distal bifurcation)	I A	IIb B	4, 54
Left main + 2VD or 3VD, SYNTAX score ≤32	I A	IIb B	4, 54
Left main + 2VD or 3VD, SYNTAX score ≥33	I A	III B	4, 54

Background:

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- At our institution ,the SYNTAX score is not routinely calculated, and the decision regarding the preferred revascularization modality for LM/3VCAD patients is based on the clinical assessment of the IC during angiography.

Objectives:

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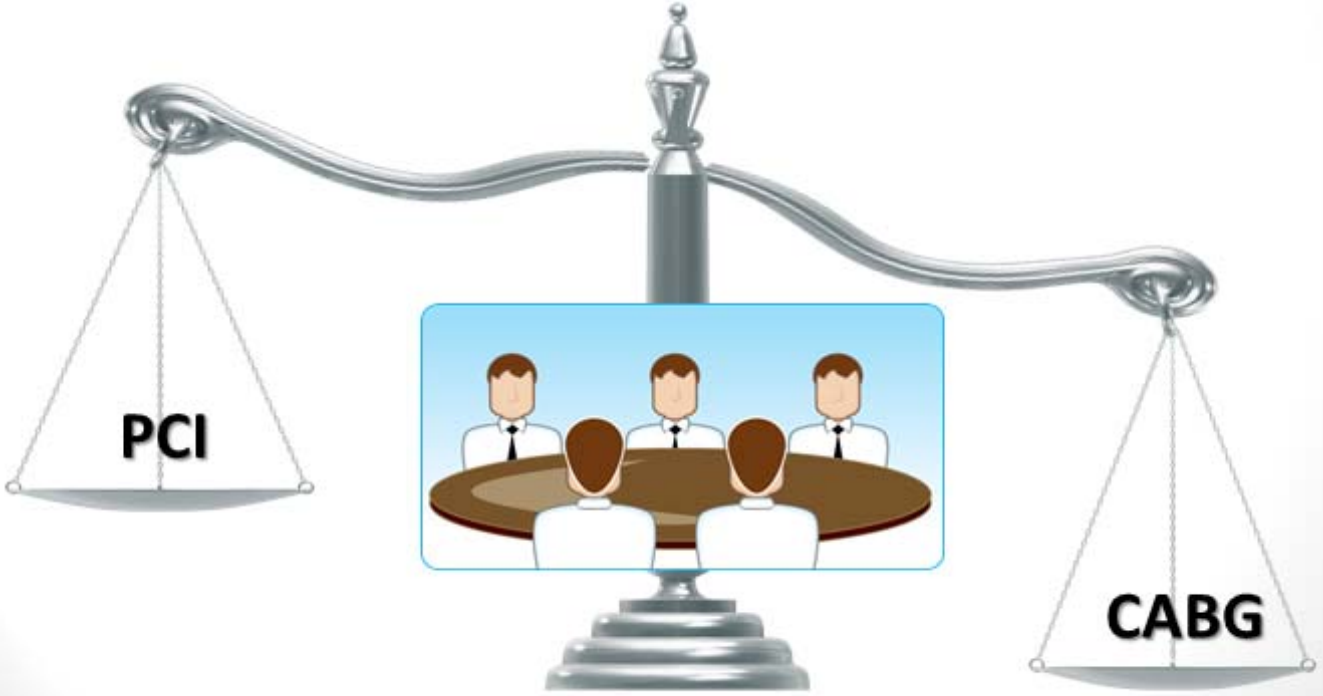
- To asses the level of agreement between the clinical judgment and the SYNTAX score regarding the preferred revascularization modality, according to current ESC guidelines .

- To explore the possibility of clinical benefit in integrating the SYNTAX score into the decision making process.



Methods:

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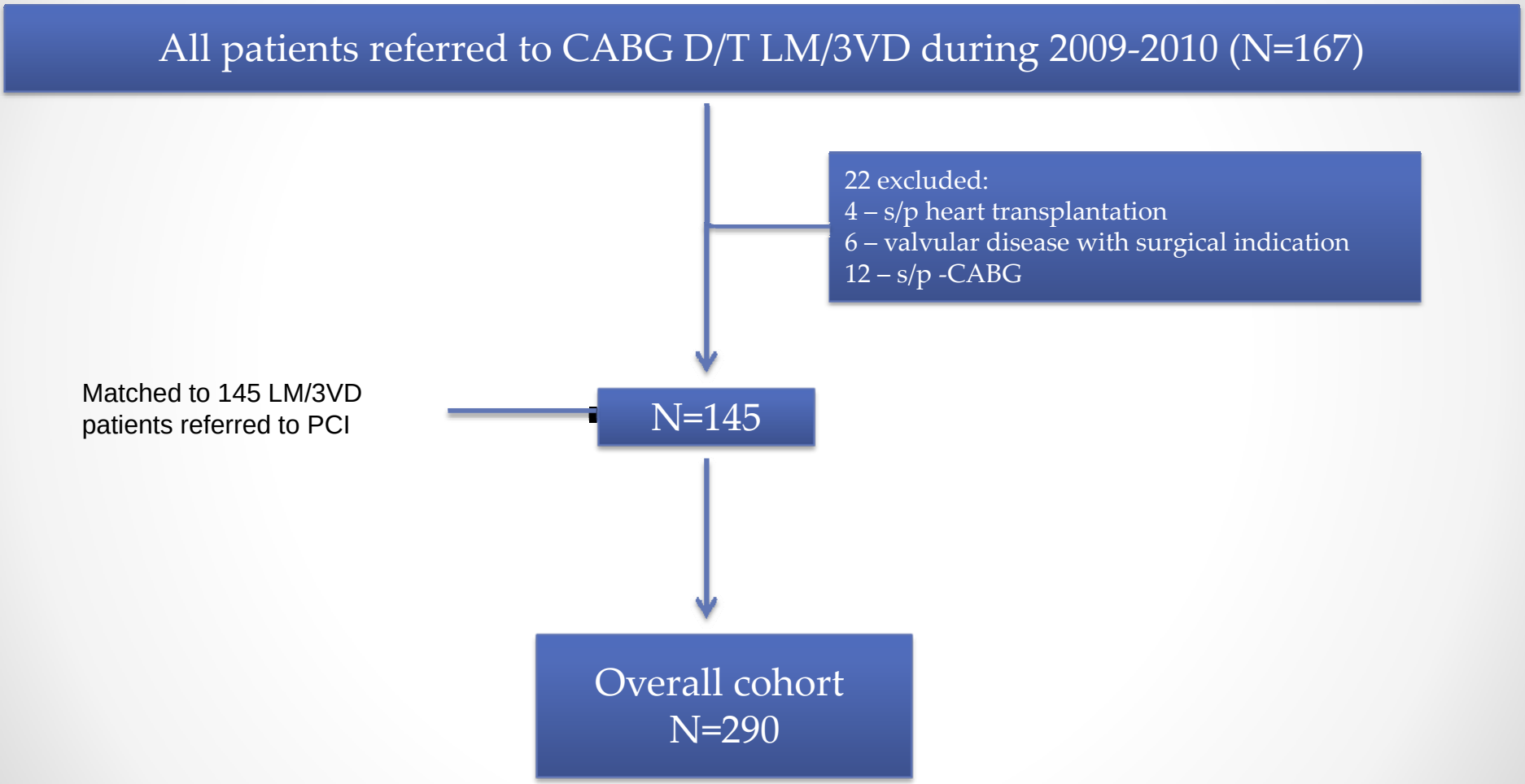

Methods:

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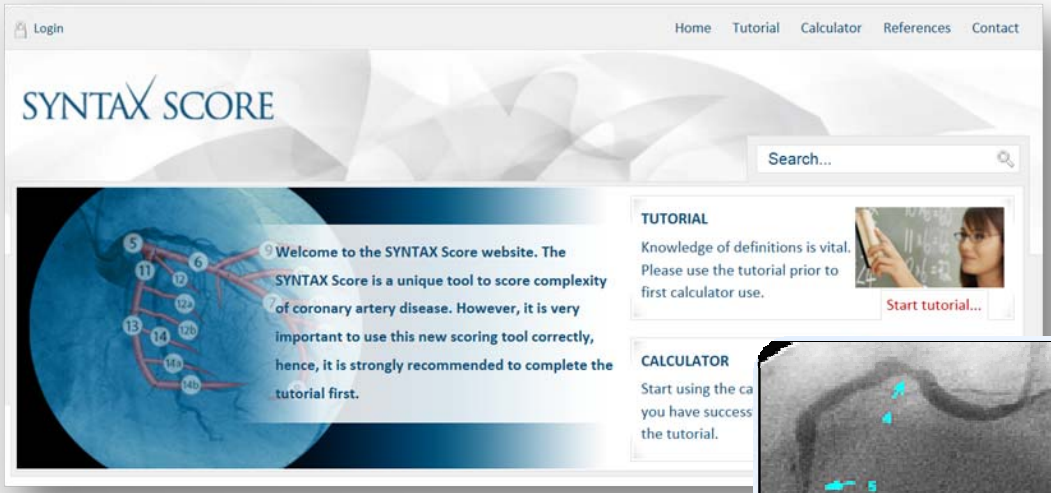
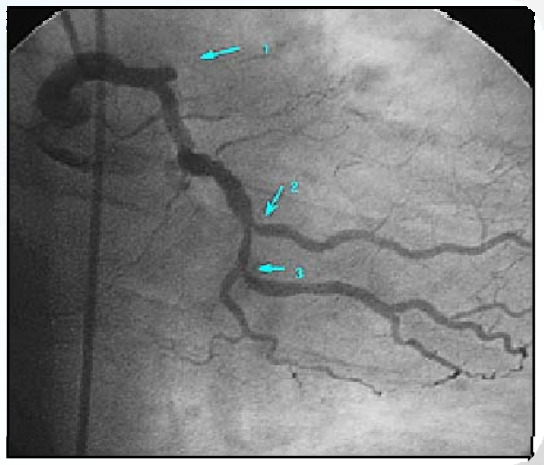
- Each angiography was reviewed and the SYNTAX score was calculated.
- For every patient, the revascularization procedure was classified as being with agreement to the retrospective SYNTAX score or not.
- MACCE at 3 years for each patient was collected from our database.





Methods:

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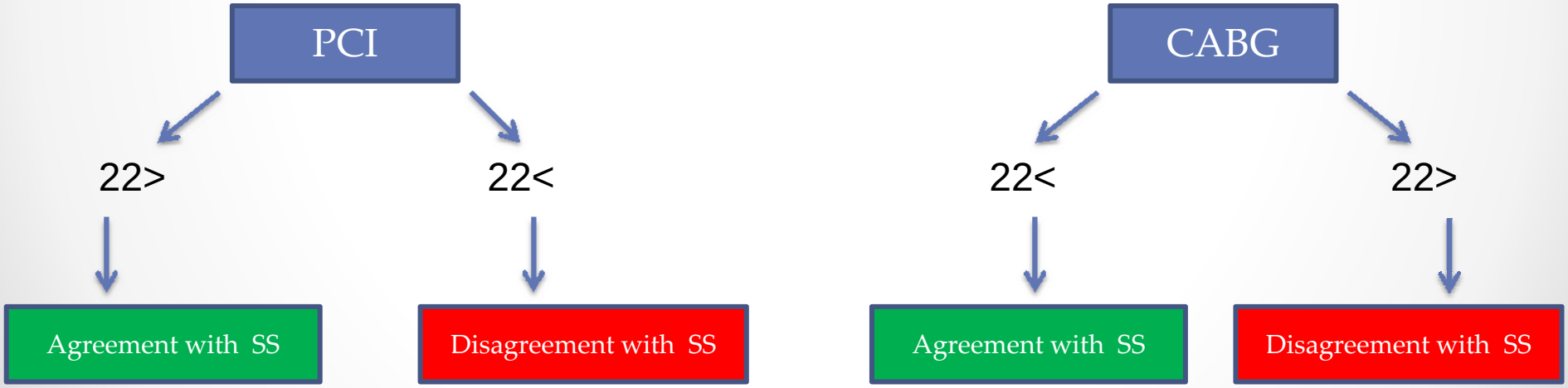
- Definition of procedural agreement to SYNTAX score:

Based on the 2010 ESC revascularization guidelines, a SYNTAX score value of 22 was used as an absolute indication for CABG.



Results:

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- baseline characteristics:

	CABG (n=145)	PCI (n=145)	P-value
AGE>65	44%	52%	0.08
DM	31%	36%	0.53
ACS	58%	58%	1
CREATININE	0.96mg/dl	1.23mg/dl	0.012
SYNTAX SCORE	23	19	<0.01
EF	53%	54%	0.142
LM disease	40%	4.7%	<0.01

Agreement with SYNTAX score:

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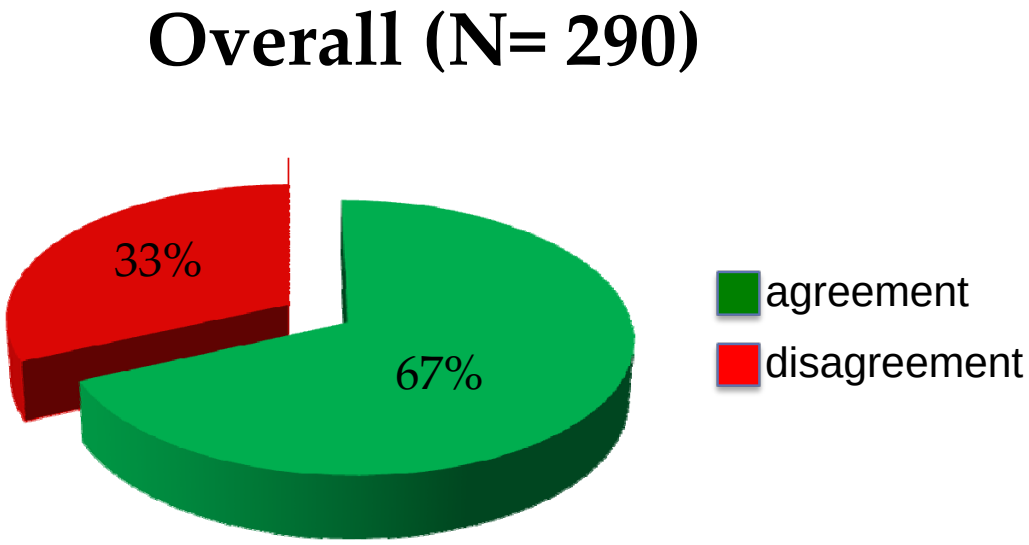

Agreement between clinical judgment and SS according to 2010 ESC guidelines

Agreement with SYNTAX score:

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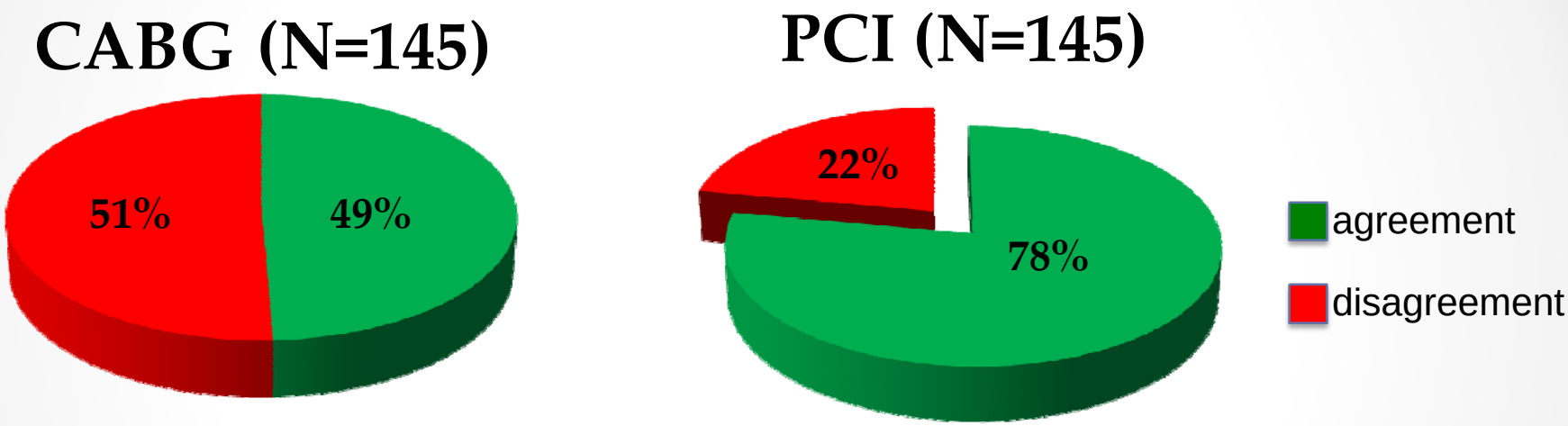

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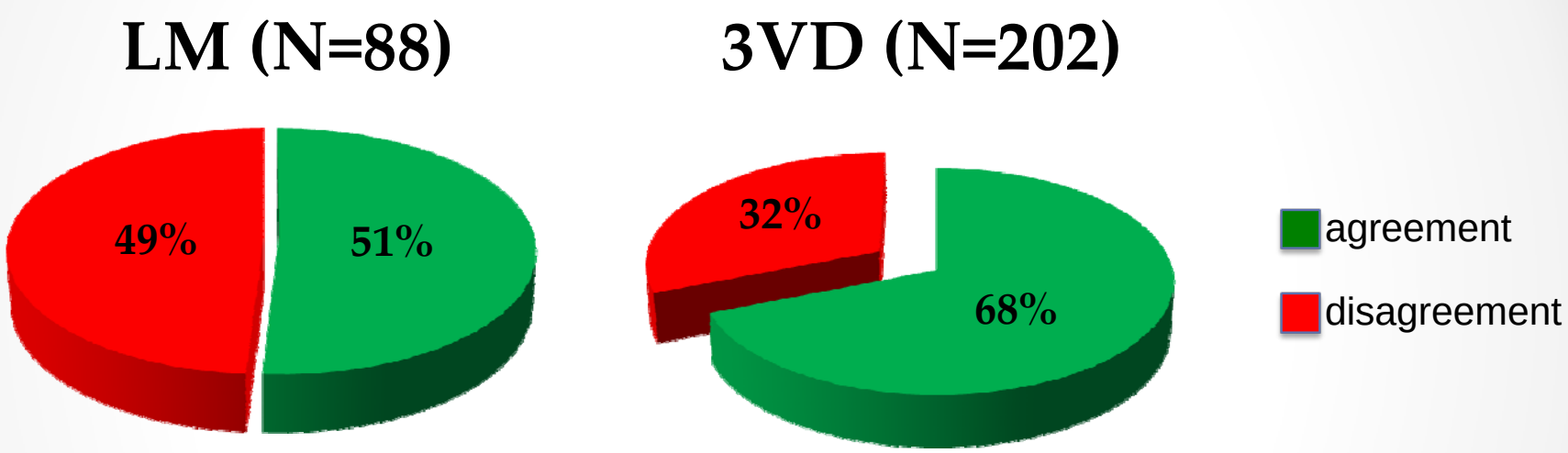

Agreement between clinical judgment and SS according to 2010 ESC guidelines

Results:

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- According to our data the clinical assessment of the IC has a:
  - **NPV** of **0.79** (CI 0.71-0.85)
  - **PPV** of **0.5** (CI 0.42-0.59)

For assigning a patient for surgical revascularization in accordance to SYNTAX score

Results overall cohort:

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	disagreement with SS	agreement with SS	P-value
3Y MACCE	33.7%	21.7%	0.034
3Y MORTALITY	10.9%	12.9%	0.709
3Y CV MORTALITY	3%	3.2%	1
3Y MI	5.9%	4.2%	0.57
3Y CVA	5.9%	2.6%	0.2
3Y REPEAT REVASCULARIZATION	11.9%	4.8%	0.033

MACCE at 3Y

Repeat revascularization at 3Y

Overall PCI patients

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	disagreement with SS SS>22	Agreement with SS SS<22	P-value
3Y MACCE	29%	8.2%	0.002
3Y MORTALITY	7.2%	6.8%	1
3Y CV MORTALITY	1.4%	1.4%	1
3Y MI	4.3%	4.1%	1
3Y CVA	8.7%	0%	0.012
3Y REPEAT REVASCULARIZATION	8.7%	0%	0.012

Overall CABG patients

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	disagreement with SS SS<22	agreement with SS SS>22	p value
3Y MACCE	43.8%	30.2%	0.202
3Y MORTALITY	18.8%	16.4%	0.791
3Y CV MORTALITY	6.3%	4.3%	0.645
3Y MI	9.4%	4.3%	0.371
3Y CVA	0%	4.3%	0.585
3Y REPEAT REVASCULARIZATION	18.8%	9.8%	0.094

Conclusions

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- There was a considerable disagreement between the clinical assessment and SS regarding the mode of revascularization in pts. with LM/3VD .
- The disagreement was more prominent in the LM group and in patients referred to CABG.
- The clinical assessment had a low positive predictive value for adequately referring the patients to CABG.
- Patients whose mode of revascularization was not in agreement with the SS had more adverse events at 3 yrs, driven by more repeat revascularizations.