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Heart Failure

CORONARY SINUS ANATOMY: AJMER WORKING GROUP CLASSIFICATION

Poster Contributions
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Background: Coronary sinus (CS) anatomy is a major predictor of successful implantation of Left ventricular (LV) lead and procedural outcome. We therefore made an attempt to look at the CS anatomy and possible feasibility to classify them into categories depending upon their size, branching pattern, location of posterolateral vein (PLV) and other parameters so as to be able to guide the cardiologist for successful cannulation of the CS and LV lead implantation.

Materials And Methods: We analysed the levo-phase angiograms of patients (n=100) undergoing routine coronary angiography, in the RAO view and classified these observations on the basis of pre-determined parameters and a working classification was brought out for the ease of the operator and to predict the bottlenecks of the procedure.

Observations:

Parameters (n=100)	Type I	Type II	Type III
Size of ostium	>10mm(30)	5-10mm(63)	<5 mm(7)
Mean size of CS before PLV	>10mm(8)	5-10mm(67)	<5mm(25)
Mean size of PLV	>4mm(7)	2-4mm(53)	<2mm(40)
Ratio of Mean CS size/PLV size	<2(40)	2-4(53)	<4(7)
Total number of lateral branches	>2(27)	2(39)	1(34)
Total number of veins between Anterior interventricular vein and Middle cardiac vein	>2(52)	2(36)	<2(12)
Tortuosity between optimal lead implantation site and CS ostium	2curves<75 degrees or 1curve >75 degrees(68)	2curves>75 degrees(31)	3curves>75degrees(1)
Angle between axis of CS and horizontal plane passing through the ostium of the CS	<45 degrees(28)	45-90 degrees(66)	>90 degrees(6)
Tortuosity of the vein that is the ideal site for lead implantation	Absent/<2 curves(65)	2 curves(30)	>2 curves(5)
Distance between the CS ostium and the ideal site for ostium of the vein that is the ideal site for implantation of LV lead	<10mm(0)	11-40mm(71)	>40mm(29)
Valves	No valves(51)	Valves in the anterior/middle or posterior veins(22)	Thebesian valve and Valve of Vieussens(27)
Other findings	Separate opening of the Posterior vein and Middle cardiac vein(67)	Common opening of Posterior vein and Middle Cardiac vein(33)	Obstructed CS(3) Muscle Sleeve in CS(33) CS diverticula(0)

Conclusions: This observational study proposes a new anatomical working classification for CS for purposes of successful LV lead placement and optimal operative success. We expect that type I CS anatomy will have the highest whereas type III CS anatomy will have the lowest operator success rate though type II is the commonest anatomy found.