INTRODUCTION
Several techniques have been used to deliver stents in the presence of complex coronary anatomies with a low rate of technical variables related to the use and performance of these coronary extension systems. There are few studies that evaluate in the real world practice the usefulness of these devices.

METHODS
During the time period since January 2012 to October 2014 we enrolled 63 consecutive patients in which we used coronary extension systems (Guideliner or Heart-trail II catheters) to aid in coronary intervention. We recorded the angiographic technical variables related to the use and performance of these coronary extension systems.

RESULTS
Seventy two lesions in 63 patients were treated using mother-child catheters. The average age was 65.2±9.7 years. Diabetes was present in 55 (87%) patients. Most of the patients had chronic stable coronary artery disease (57% of the patients). Sixty three Guideliner catheters and 9 Heart-trail II catheters were used. The type C lesion was treated principally. The reason to use the coronary extension systems was: lack of support of the guiding catheter in 59% of the cases and inability to deliver the stent in 84.7% of the cases. Child-Catheter intubation distance into the native coronary artery was 30.5±21.2 mm. The success rate to advance the extension system to deliver the stent into the coronary artery was 90.2%. The most frequent complication seen was coronary artery C type dissection (6.9% of the cases). No deaths related to the use of the extension systems were observed.

CONCLUSIONS
Coronary extension systems improve the back-up support necessary to deliver stents in the presence of complex coronary anatomies with a low rate of serious complications.

Usefullness of Coronary Extension Systems (Mother Child Guide Liner and Heart Trail Catheters) in Complex Coronary Interventions
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OBJECTIVE
Anatomical and functional mismatches are not uncommon in the assessment of coronary lesions. The aim of this study was to identify clinical and lesion specific factors affecting angiographic, anatomical and functional mismatch in intermediate coronary lesions.

METHOD
In patients who underwent coronary angiography for clinical reason, fractional flow reserve (FFR) and quantitative coronary angiography (QCA) analyses for intermediate stenotic lesions were performed simultaneously. Mismatches between measured values were analyzed.

RESULT
 Ninety five intermediate lesions were assessed simultaneously by visual angiography, FFR and QCA. Visual-FFR mismatch was found in 40% of the lesions while reverse Visual-FFR mismatch was determined in nearly 14% of the lesions. Mismatch and reverse mismatch between FFR and QCA parameters were observed in 10% and 23% of the lesions. FFR value was significant in 32% of lesions while visually significant stenosis was shown in 62% of lesions. Among the Visual-FFR reverse mismatch group, the prevalence of culprit lesions within the LAD was significantly higher than other vessels (p value=0.02).

CONCLUSION
There were high frequencies of angiographic, QCA and functional mismatches in analyses of intermediate coronary lesions. LAD lesions showed the highest mismatch. Angiographic or QCA estimation of lesion severity has consistently resulted in inappropriate stenting of functionally non-significant lesions or under-treatment of significant lesions based on FFR.

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Usefullness of Coronary Extension Systems (Mother Child Guide Liner and Heart Trail Catheters) in Complex Coronary Interventions

CRT-152
Predictive FFR Value After PCI on Long Coronary Lesions

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Usefullness of Coronary Extension Systems (Mother Child Guide Liner and Heart Trail Catheters) in Complex Coronary Interventions

CRT-154
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CRT-156
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CRT-157
Usefullness of Coronary Extension Systems (Mother Child Guide Liner and Heart Trail Catheters) in Complex Coronary Interventions

CRT-158
Predictive FFR Value After PCI on Long Coronary Lesions
Defining Optimal Stent Overexpansion Strategies for Left Main PCI- Insights from bench testing

**BACKGROUND** With improved percutaneous coronary intervention (PCI) techniques, PCI has emerged to be a safe option for revascularization with good long term outcomes in selected patients with unprotected left main coronary artery (uLMCA) lesions. Overexpansion beyond nominal size is a common procedure to ensure adequate stent apposition during left main stenting to improve clinical outcome. However, there is limited data concerning the feasibility and safety of aggressive post-dilation of metallic stent platforms during left main stenting to achieve apposition and reduce focal underexpansion.

**OBJECTIVES** The objectives of this study are to investigate if overexpansion can be achieved beyond the recommended stent expansion limit for a 4.0 mm metallic stent and to compare different expansion techniques to achieve optimal apposition and study the effect of overexpansion on the mechanical performance of the stent.

**METHODS** We performed bench testing to measure the effect of overexpansion on the stent performance of thin strut (74 µm) 4.0 mm drug eluting platinum chromium stents (DES) (Synergy IITM, Boston Scientific, Natwick, MA, USA) in silicon phantom models of 6 mm diameter. We tested the stents in the following 5 models: using a 6.0 mm balloon with Proximal Optimisation Technique (POT) at low (nominal) pressure of 6 atm (Group 1- POT-LP) and rated burst pressure (RBP) of 14 atm (Group 2- POT-RBP), final kissing balloon dilation (FKBD) using relatively undersized (‘US’) 3.5 mm and 4.0 mm balloons at RBP (Group 3- FKBD-US), FKBD using adequately sized 4.0 mm and 5.0 mm balloons at low pressure (Group 4- FKBD-LP) and finally at RBP (Group 5- FKBD- RBP).

**RESULTS** The platinum chromium stents 4.0 mm stent reached an outer diameter of only 5.1 mm by using a 6.0 mm balloon at 6 atm. Further postdilation with higher pressures (14 atm) resulted in a stent outer diameter of 6.0 mm, demonstrating a safety margin above the designated expansion limit. Simultaneous kissing with undersized balloon diameters resulted in a high ellipticity index and importantly mal-apposition. Using correctly sized balloons, stent area improved but ellipticity remained and malapposition was less but still higher compared to POT-LP and POT-RBP.

**CONCLUSIONS** Our study shows that the thin strut platinum chromium 4.0 mm stents can be safely expanded with the use of POT beyond the overexpansion limit of 5.75 mm with optimal stent apposition and performance. Proximal optimisation using adequately sized balloons and high pressure is advised to achieve optimal outcome in left main stenting.

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**Intravascular Ultrasound Guided Left Main Interventions: Meta-analysis**

**BACKGROUND** Interventions of the left main coronary artery are complex and require high degree of technical skills. Intravascular ultrasound (IVUS) can aid interventions of the left main coronary artery. We performed this meta-analysis to assess the efficacy of use of IVUS compared to angiographic-guided PCI.

**METHODS** Electronic search of PubMed, EBSCO and Google Scholar databases was done to identify studies of IVUS guided left main interventions. Pooled meta-analysis of major adverse cardiac events (MACE), cardiac death, myocardial infarction (MI), target vessel revascularization (TVR), target lesion revascularization (TLR) and stent thrombosis was performed using Comprehensive Meta-analysis 2 software. Mantel- Haenszel random effects model was used to compute the odds ratio (OR) for the above outcomes with and without the use of IVUS.

**RESULTS** A total of 4 studies with 2607 patients were identified that compared left main interventions done using with and without IVUS guidance. Interventions were done using IVUS in 1576 and angiographic-guided interventions were performed in 1031 patients. The risk of MACE with the use of IVUS guided intervention was 0.64 (95% CI: 0.49 - 0.83). The use of IVUS decreased cardiovascular death (OR 0.37; 95% CI: 0.23 - 0.63) and MI (OR 0.69; 95% CI: 0.51 - 0.92). IVUS use in left main intervention had a trend towards lower TVR (OR 0.66; 95% CI: 0.27 - 2.49), TLR (OR 0.74; 95% CI 0.5 - 1.09) and stent thrombosis (OR 0.26; 0.07 - 1.04).

**CONCLUSION** The use of IVUS for left main interventions is associated with 36% lower risk of MACE, 31% lower risk of repeat MI and 63% lower risk of cardiovascular death. The above findings suggest major outcomes benefit with the use of IVUS for left main interventions.