

EFFECT OF RAMIPRILAT-COATED STENT IN A PORCINE CORONARY RESTENOSIS MODEL

ACC Poster Contributions

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Authors: *Young Joon Hong, Myung Ho Jeong, Jung Ha Kim, Kyung Seob Lim, Jum Suk Ko, Min Goo Lee, Doo Sun Sim, Keun Ho Park, Nam Sik Yoon, Hyun Ju Yoon, Kye Hun Kim, Hyung Wook Park, Ju Han Kim, Youngkeun Ahn, Jeong Gwan Cho, Jong Chun Park, Jung Chae Kang, Heart Center of Chonnam National University Hospital, Gwangju, South Korea*

Background: The major problems of commonly used drug-eluting stents were strong peri-stent inflammatory response and delayed arterial healing. The aim of this study was to examine the anti-proliferative and anti-inflammatory effects and arterial healing of ramiprilat-coated stent in a porcine coronary overstretch restenosis model.

Methods: Pigs were randomized into two groups in which the coronary arteries (16 pigs, 16 coronaries in each group) had either a ramiprilat-coated MAC stent or control MAC stent (AMG, Munich, Germany). Stents were deployed with oversizing (stent/artery ratio 1.3:1) in porcine coronary arteries, and histopathologic analysis was assessed at 28 days after stenting.

Results: There were no significant differences in the neointima area normalized to injury score and inflammation score between the two groups (1.58 ± 0.43 , 1.60 ± 0.39 in ramiprilat stent group vs. 1.60 ± 0.57 , 1.62 ± 0.49 in control stent group, respectively). In neointima, most inflammatory cells were lymphohistiocytes. Overall, significant positive correlations were found between the lymphohistiocyte count and the neointima area ($r=0.567$, $p<0.001$) and between the lymphohistiocyte count and the percent area stenosis ($r=0.478$, $p<0.001$). Lymphohistiocyte count (170 ± 121 cells vs. 162 ± 83 cells) and fibrin scores (0.15 ± 0.06 vs. 0.17 ± 0.07 , $p=0.8$) were low in ramiprilat stent group as same as those in control group. There was a strong trend of smaller neointima area (1.06 ± 0.51 mm² vs. 1.28 ± 0.35 mm², $p=0.083$) and percent area stenosis ($18.9 \pm 8.7\%$ vs. $22.8 \pm 7.2\%$, $p=0.088$) in the ramiprilat stent group compared with control group.

Conclusions: Ramiprilat-coated stent showed a good inhibitory effect on neointimal hyperplasia without differences in inflammatory reaction and arterial healing compared with bare-metal stent in a porcine coronary restenosis model.