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TGF-b1에 의해 유도된 상피-중간엽 전이에서 Aquaporin 1과 Aquaporin 3의 발현

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Expression of Aquaporin 1 and Aquaporin 3 in TGF-b1 induced epithelial-mesenchymal transition

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Background : During peritoneal dialysis (PD), the peritoneum is exposed to PD fluid that causes epithelial- to-mesenchymal transition (EMT) of mesothelial cells leading to fibrosis. In this study, we explored the expression of aquaporin (AQP) 1 and 3 in TGF- b1- induced EMT of HPMCs. AQP is a family of water channels that are highly selective for the passage of water and occasionally glycerol.

Methods : HPMCs were treated with TGF- b1 (3, 5 ng/mL) for 48 h to induce EMT. The EMT process was monitored by observing morphology and immunoblotting for a- SMA and E- cadherin. After treatment with TGF- b1 in HPMCs, western blotting for AQP1 and AQP3 was performed in cell lysate. AQP1 and 3 were also detected by real time PCR.

Results : Mixed cobblestone- shaped HPMCs with fibroblastoid cells were observed at 3 ng/mL of TGF- b1. Fibroblastoid cells were more dominant at 5 ng/mL of TGF- b1. Increased expressions of a- SMA and decreased expressions of E- cadherin were observed after TGF- b1 treatment. The AQP1 transcripts were higher than AQP3 transcripts in no treated HPMCs. AQP1 mRNA slightly decreased in HPMC treated with TGF- b compared to control, whereas AQP3 mRNA significantly increased at 3 ng/mL of TGF- b1 but it slightly decreased at 5 ng/mL compared to 3 ng/mL of TGF- b1

Conclusion : These results suggest that the expressions of AQP1 and 3 are changed in TGF- b1- induced EMT of HPMCs.

Key Words : EMT, Aquaporin, HPMC