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Propositions/Stellingen

Degradation of the endothelial glycocalyx by atherogenic factors: microvascular functional implications

1. The in vivo thickness of the endothelial surface layer is much larger than previously estimated in electron microscopy studies (Vink H. and Duling B.R., *Circ. Res.* 1996; 79:581–589).

2. The adhesion of blood cells to the endothelial surface is mediated not only by expression and activation of adhesion molecules, but also by endothelial glycocalyx degradation (this thesis).

3. In contrast to the commonly accepted theory that particle size is a limiting factor for the ability of lipoproteins to penetrate into the vessel wall, large lipoproteins of chylomicron sizes can penetrate the microvascular endothelial barrier (this thesis).

4. A better understanding of the local flow regulation in the heart requires the study of the 3-dimensional architecture of the coronary arterial tree and especially of the microcirculation.

5. Because heparin competes with the endothelial cell heparan-sulfate for the binding of many plasma proteins, administration of heparin may have additional, yet unknown, effects on vascular endothelial function.

6. It is the vasodilation rather than the decrease in blood pressure that improves resistance vessel design during the treatment of essential hypertension (Christensen K.L. and Mulvany M.J., *J. Hypertens.* 2001; 19:1001–6).

7. During organogenesis, organs await the blood vessels' 'go' signal. The endothelial cells are the leader and they guide the differentiation of the cells surrounding them (Matsumoto K. et al., *Science* 2001; 294:559–63, Lammert E. et al., *Science* 2001; 294:564–7).

8. Als de regel luidt dat 'teamwork' beter is, dan is het zelfstandig werken van de AIO de uitzondering die deze regel bevestigt.

9. Seeing, believing, and the expression "seeing is believing" don't always fit together.

10. "Education is an admirable thing, but it is well to remember from time to time that nothing that is worth knowing can be taught" (Oscar Wilde).

Alina A. Constantinescu, 4 december 2002