Reviewer’s report

Title: Organ culture: a new model for vascular endothelium dysfunction

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Version: 1 Date: 13 Mar 2002

Reviewer: Dr Richard Sercombe

Level of interest: A paper whose findings are important to those with closely related research interests

Advice on publication: Unable to decide on acceptance or rejection until the authors have responded to the compulsory revisions

This paper seems basically sound, though it is a pity the scope of the investigation is restricted to endothelium-derived dilators released by one agonist, acetylcholine.

Mandatory corrections
1. The tests with nitroprusside and forskolin effectively demonstrate that the guanylate cyclase and the adenylate cyclase systems are functioning normally in cultured segments, but we have no proof that there is not an enhancement of the smooth muscle response to EDHF in cultured segments, which could have been checked with a K+-channel opener. In the absence of this experimentation, this should be pointed out to the reader.
2. Another overinterpretation in the discussion is that lines 3-5, p12 say that the muscarinic receptor expression must be intact because the total Ach dilatation is not changed. I believe this is not formal proof of that hypothesis. In the 1980s there were a number of papers which reported no release of EDRF from cultured endothelial cells, because the muscarinic receptor expression was abolished. Although this is probably untrue in cocultures with smooth muscle, you cannot totally rule out some decrease in expression without doing ligand binding measurements.

Minor points
1. Indicate the way in which relaxation is expressed in the abstract.
2. Reference 13 should be cited earlier in the sentence (p4) and another reference given to substantiate the statement on smooth muscle cell alterations in disease.
3. What is CHF (4th para p12)?
4. The discussion is a little repetitive and could be shortened.

Competing interests:

None declared.