Letters to the Editor

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Reply to the Editor:

We thank Dr Dainese for this comment. Several groups have demonstrated that in vitro seeding of cells on artificial scaffolds or on natural matrices in a biomimetic environment succeeded in the generation of functional tissue-engineered heart valves.\textsuperscript{1,2} More recently, Yacoub\textsuperscript{3} has said in an interview about mesenchymal stem cells that “if you subject these cells, in a 3 dimensional matrix, to programmes of conditioning using cyclic pressure of a predefined nature, they change their phenotype to one that is very similar to valve tissue.” Yacoub and his team still believe that the future of the tissue-engineered heart valve is dependent of an in vitro seeding in a bioreactor. To our knowledge, for the first time in this field, our work\textsuperscript{4} suggests that direct injection of mesenchymal stem cells seems to induce almost physiologic recolonization of valvular matrix under physiologic shear stress. Re-endothelialization of a decellularized xenogeneic matrix can be obtained in vivo without the cumbersome step of bioreactor recellularization. This has the evident advantage of simplifying the recellularization procedure and guaranteeing that recolonizing cells will stand the actual high shear conditions of a cardiac valve. However, we have to underline the evident limits of our work. First, we do not know at the present time whether the recolonizing cells directly derive from the injected cells or from autologous cells migrating from blood or neighboring tissue. Second, as suggested by Dainese et al, a longer follow-up period is mandatory and should be prolonged for more than 1 year to confirm our results.

References


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