

Future Directions for Translation of Tissue Engineering Products into Clinic

At present, Iran has been known one of the up-warding countries in the world in regenerative medicine using stem cells therapy. In fact, the outcomes of some clinical trials on stem cell therapy of myocardial infarction, vitiligo, decompensated cirrhosis, and osteoarthritis narrate the feasibility of stem cell-based therapy for treatment of human diseases^{1, 2}. However, in a similar manner with global configuration, the commercialization and translation of tissue engineering products into clinical phase has been restricted. It might be due to weak collaboration of different specialties for technology transfer of the multidisciplinary projects of tissue engineering field into clinical phase. Basic tissue engineers mostly prefer elegant studies, whereas physicians have tendency to solve medical problems with products indicating efficiency, easy to use, and cost benefit. Actually, a surgeon encountered with a dilemma between a partially effective tissue-engineered product that is both expensive and difficult to apply and a more traditional approach may choose the latter option. Therefore, a coherent teamwork between basic sciences and medicine as well as acquisition of competent knowledge about target tissue is necessary to conduct tissue engineering in the clinic. Moreover, it should be considered that in developing countries including Iran the high cost of high-tech biomedical research necessitates government investment³. Currently, the policy makers have established some action plans to support of science-based companies financially. This is a suitable opportunity to ligature basic research and market for commercialization of tissue engineering products. However, because private investors beyond academic laboratories should provide financing of tissue engineering products, incentive of private companies for investment should not be neglected. It is notable that tissue-engineered products will fulfill small market size unless they could indicate much superior results than competitive alternatives.

It is noticeable that tissue engineers should determine the requirements of community and develop strategies to penetrate the products into clinic. Indeed, the communication between scientists and policy makers should be increased to better definition of national research priorities. On the other hand, considering local necessities and natural resources should be rather than subjective experts' notions or international superiorities. Finally, ethical and legal regulations should be actually defined that indubitably make great profits to the society.

References

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