

Structural study on cultured isolated fetal rat pancreatic islets

Faisal M. Al-Mashat, Abdulrahman M. Sibiany, Mostafa M. El-Naggar, Mohammed H. Badawoud, Ahmed A. Alayat, Mohammed S. Ardawi

ABSTRACT

Objectives: To perform a morphometric and structural study of the cultured isolated fetal rat pancreatic islets.

Methods: Islets of the fetal rat pancreas, aged 22 days were isolated by the standard procedure of collagenase digestion and culture technique. The islets were cultured for 1, 2, 3, 4 and 5 days. The islets were counted under a dissecting microscope and islet diameter and purity were measured under a phase contrast microscope fitted with a calibrated grid. The islet specimens were fixed in buffered neutral formalin, dehydrated in alcohol and embedded in parablax. Sections were stained with hematoxylin and eosin. This study was conducted in King Fahd Medical Research Center, Faculty of Medicine, King Abdul-Aziz University, Kingdom of Saudi Arabia, during 2003 and 2004.

Results: The purity of the cultured islets gradually increased with time and was significantly different between the cultured groups. The number of the cultured islets gradually decreased with time. The islet diameter gradually increased with culture period. The islet purity and diameter were significantly different between the cultured groups. Parablax sections stained with hematoxylin and eosin showed that the shape and histological structure of the cultured islets were intact.

Conclusions: The results of the present work represent an extensive morphometric structural study of isolated cultured fetal islets. The culture islet diameter and purity showed gradual increase with culture period, while the islet number showed gradual decrease.

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