ORIGINAL ARTICLE Mirror of Research in Veterinary Sciences and Animals MRVSA/ Open Access DOAJ

Mirror of Research in Veterinary Sciences and Animals (MRVSA) / Journal homepage: http://mrvsa.com/
E-ISSN 2307-8073; 2520-324X (Print)

Impact of xenotransplantation of sheep ovarian cortex and follicular fluid-enriched SMART medium on the morphology of recovered of sheep oocyte

Muhammad Baqir M.R. Fakhrildin [1 *];Nadia J. Sudani Al-Behadili [2];Mohammad Oda Selman[3]
Professor & headman of Medical Physiology Department/, Jabir Ibn Hayyan Faculty of Medicine /AL-Najaf / Iraq; [2] Central veterinary laboratory / Ministry of Agriculture/Baghdad/ Iraq; [3] Head of applied embryology department/ High Institute of infertility diagnosis and ART/ Al-Nahrain University/Baghdad/ Iraq

ARTICLE INFO

Received: 28.12.2016
Revised: 28 .01. 2017
Accepted: 29.01. 2017
Publish online: 01.02.2017

***Corresponding author:**
Email address:
art_mbmrfd@yahoo.com

Abstract

Ovarian follicles and cortical tissue can survive viable after ovariectomy and use successfully for xenotransplantation or in vitro maturation. This study designed to assess in vitro maturation (IVM) of sheep oocytes recovered from immature follicles using simple medium for assisted reproductive techniques (SMART) medium enriched with follicular fluid (FF) using xenotransplanted ovarian tissue cortex inside the body of female mice injected with or without different hormonal stimulation protocols. In this study, follicular fluid (FF) aspirated from randomly sheep ovarian follicles. Seventy-five healthy and mature female mice were used for transplantation of sheep ovarian tissue (OT) on the inner side of the peritoneum. Later on, these female mice were classified into two groups. Group A: control (without medication). Group B: hormonal programs (hormonal stimulation). The last experimental group was Group C: the direct examination of sheep ovarian cortex group. The sheep ovarian cortex was recovered from female mouse then oocytes were collected by slicing for assessment and classified into three groups. Group1: oocytes incubated within SMART medium alone (control group). Group 2: oocytes incubated within SMART medium enriched with 5% FF, and Group 3: oocytes incubated within SMART medium enriched with 10% FF. The normal oocytes morphology was assessed post-xenotransplantation and parameters were statistically analyzed. No significant ($P > 0.05$) difference of normal oocytes morphology was seen between treated group (GB) and control group (GA). However, significant ($P = 0.043$) difference was observed in the percentage of normal oocyte morphology of recovered oocytes for the group (GC) in compare to (GA). Meanwhile, there was highly significant ($P < 0.001$) difference between GB and GC groups. Addition 5% FF to SMART medium of GB revealed significant ($P = 0.044$) difference in compare to the GA. Moreover, highly significant ($P < 0.001$) difference was observed in GC in compare to GA and GB compared to GC. Meanwhile, addition 10% FF to SMART medium of G3 revealed significant ($P < 0.05$) difference in the percentages of the normal and abnormal morphology of recovered oocytes. In conclusion, this study approved that normal oocyte morphology and maturation was valuable when using ovarian tissue grafts. In addition, the combination of SMART medium with 10% FF was revealed the best oocyte morphology and maturation.

To cite this article: Muhammad Baqir M.R. Fakhrildin; Nadia J. Sudani Al-Behadili ; Mohammad Oda Selman. (2017). Impact of xenotransplantation of

sheep ovarian cortex and follicular fluid-enriched SMART medium on the morphology of recovered of sheep oocyte. MRVSA. 6 (1), 9-18.
DOI: 10.22428/mrvsa. 2307-8073.2016. 00612.x

Key words: Ovarian tissue transplantation, in vitro maturation, xenotransplantation.