Volume 51(Suppl.1) 2007
Acta Biologica Szegediensis
http://www.sci.u-szeged.hu/ABS

Plastination of pathological specimens – a new challange

A Alpár[1]*, T Glasz[2], Zs Fejér[3], M Kálmán[1]

[1]Department of Anatomy, Histology and Embryology, Semmelweis University, Faculty of Medicine, Budapest, Hungary, [2]Second Department of Pathology, Semmelweis University of Medicine, Budapest, Hungary, [3]Department of Human Morphology and Developmental Biology, Faculty of Medicine, Semmelweis University, Budapest, Hungary

Numerous recent studies have acknowledged the merits of plastination in anatomy. Specimens conserved in this way can be handled easily and hygienically which broadens the possibilities in the presentation of anatomical preparates. The present study aimed to introduce plastination in another morphological discipline, in pathology. Conserving pathological organs or tissues with polymer impregnation and curing offered completely new challenges which have not been faced when plastinating healthy tissues. Transformed tissues often change their color or consistence, they can be removed or washed out easily in other cases, however, the preservation of these alteration is of primary diagnostical importance. It could be demonstrated that color differences could be preserved in many cases, fixation of loosely anchored tissues was possible. Subtle, but typical alterations on the surface of ill organs were demonstrable as well. At the same time, consistence differences between neighbouring healthy and pathological tissues completely disappeared which ment a loss in diagnostic cues. Regarding the large number and diverse kinds of plastinated specimens we can propose that plastination serves as a useful tool in preserving pathological tissues.

*Corresponding author
E-mail: alpar@ana.sote.hu

Evaluation of the potential therapeutic use of immature stem cells in a canine model for Duchenne muscular dystrophy

CE Ambrosio[2]*, I Kerkis[1], DS Martins[2], A Kerkis[3], M Vanizof[4], SAS Fonseca[1], C Maranduba[1], RM Cabral[2], TG Peixoto[2], AC Morini[2], MP Brolio[2], LR Bertolini[2], MA Miglino[2], M Zatz[4]

[1]Laboratório de Genética, Instituto Butantan, São Paulo, SP, Brasil, [2]Departamento de Cirurgia da Faculdade de Medicina Veterinária da Universidade de São Paulo, SP, Brasil, [3]Genética Aplicada, Atividades Veterinárias LTD, São Paulo, SP, Brasil, [4]Centro de Estudos do Genoma Humano, Departamento de Genética e Biologia Evolutiva, Universidade de São Paulo, SP, Brasil

Duchenne muscular dystrophy (DMD) is a most severe form of muscular dystrophy, which is inherited as a sex-linked recessive trait and affects 1/3500 of newborn males. Molecular genetic studies indicate that MDM is the result of mutations in the huge gene that encodes dystrophin, and in 1/3 of the cases the disease is a result of a spontaneous or new mutation (Zatz 2000). In order to confirm the results obtained from mouse model, which did not provide clinical sings of the disease, it has been proposed that muscular dystrophy in the golden retriever dog may be homologous to human. Further investigation showed a normal karyotype, but a molecular defect in X-linked muscular dystrophy of the golden retriever dog (GRMD), thus demonstrating the authenticity of the canine model (Sharp et al. 1992; Valentine et al. 1992).

To compare two types of adult stem cells, umbilical cord CD 34^+ and dental pulp stem cells (IDPSC), as potential multipotent stem cells for cell therapy use, by the evaluation of their skeletal myogenic potential, migration ability and capacity to restore dystrophin function in skeletal muscle cells of dystrophic young dogs.

Each cell type was analyzed according to their morphology, ultrastructure (confocal and TE microscopy), and cell culture ability. *In vivo* tests were carried out to analyze engraftment features after infusion of Dil-labeled cells, without any immune suppression, either into the femoral artery or by intramuscular injection of 30-days-old dystrophic dogs. After 60 days, biopsies were taken for tissue immunostaining with anti-IDPSC antibody developed in our laboratory. Clinical trials were made performing critical analyses of disease evolution. Results: By electronmicrography, canine umbilical cord stem cells had an immature cell structure, differing from all primitive blood components. Cell cultures showed poor proliferation for both cell types; consequently, fresh umbilical cord stem cells. Cells, obtained by density solution and magnetic separation, were used for injections into the biceps femuralis or the femural artery. After 60 days, tissue biopies failed to demonstrate the presence

of dystrophin either by imunnohistochemistry or by protein blotting. Conversely, the analysis of tissue biopsies of animals injected with IDPSC showed denser cell engraftment, as indicated by both the presence of DiI-stained cells and anti-IDPSC antibody positive labeling. Clinical aspects were considered relevant, with the demonstration of significant differences depending on the route of injection and cell type.

The efficacy of arterial injection of pulp dental cells to treat muscular dystrophy demonstrated that canine multipotent stem cells have great potential for cell therapy, promising to become a new trend for therapeuthical approaches aiming muscular dystrophy.

Sharp NJH, Kornegay JN, Van Camp SD, Herbstreith MH, Secore SL, Kettle S, Hung W-Y, Constantinou CD, Dykstra MJ, Roses AD, Bartlett RJ (1992) An error in dystrophin mRNA processing in golden retriever muscular dystrophy, an animal homologue of Duchenne muscular dystrophy. Genomics 13:115-121.

Valentine BA, Winand NJ, Pradhan D, Moise NS, de Lahunta A, Kornegay JN, Cooper BJ (1992) Canine X-linked muscular dystrophy as an animal model of Duchenne muscular dystrophy: a review. Am J Med Genet 42:352-356.

Zatz M, Vainzof M, Passos-Bueno MR (2000) Limb-girdle muscular dystrophy: One gene with different phenotypes, one phenotype with different genes. Curr Opinin Neurology 13:511-517.

*Corresponding author
E-mail: ceambrosio@usp.br

Improving the pregnancy rate in IVF with pre IVF fluid instillation sonohysterography (PIFIS) and ultrasound guided embryo transfer (UGET)

OA Ashiru*, AA Adewusi, LJ Shittu, M Oladimeji, R Ojugbo

IVF Unit, Medical Art Center, Mobolaji Bank Anthony Way, Ikeja, Lagos, Nigeria

Objective: A practical effort to improve pregnancy rate in in-vitro fertilization and embryo transfer by the instillation of a fluid cocktail of saline and antibiotics to artificial distend the uterine cavity in the cycle prior to IVF, and the use of ultrasound guided embryo transfer.

Design: Prospective study.

Setting: Private fertility clinic and Academic center.

Patient(s): 5 patients undergoing IVF and ICSI (Intracytoplasmic sperm injection) treatment with prior failed IVF cycle with hydrosalpinx or submucous fibroid and had to go though sonohysterography to exclude uterine abnormalities or evaluation and location of submucous fibroid in the cycle prior to the IVF cycle.

Intervention(s): A saline fluid containing antibiotics cocktails was instilled in the uterine cavity through a plastic intrauterine insemination catheter attached to a syringe. Transvaginal (3-dimensionnal) ultrasonography was performed concomitantly. After IVF and ICSI embryos were transferred with ultrasound guidance ensuring placement in upper uterine cavity.

Main Outcome Measure: Clinical pregnancy.

Result(s): One patient with severe hydrosalpinx distending into the uterine cavity got pregnant and delivered a baby boy, after prior failed attempt, another patient with submucous fibroid and prior failed IVF attempt is currently pregnant. Remaining three patients had ET done and are clinically pregnant.

Conclusion: The use of PIFIS and UGET does appear to improve the pregnancy outcome in IVF.

Support: supported by grants from OARS Foundation.

*Corresponding author
E-mail: denrele@tigger.uic.edu