Results: Higher survivin expression was found in less invasive UCB (p=-0,011 for nuclear and p<-0.001 for cytoplasmic expression) and in UCB with lower histological grade (p=-0,018 for nuclear and p<-0.001 for cytoplasmic expression).

Conclusions: Our results suggested that high survivin expression was associated with tumor stage and grade in UCB. Further studies are needed to conclude if survivin expression can be used as a diagnostic or prognostic marker for UCB.

Keywords: surviving; urothelial carcinoma; urinary bladder; immunohistochemistry.

EPigenetic agents influence proliferation and apoptosis in mouse teratocarcinoma in vitro

Jure Krasić 1, Robert Buljubašić 2, Maja Buljubašić 3, Ana Katušić 1, Maja Vlahović 1, Florijana Bulić-Jakuš 1, Monika Ulamec 4,5, Nino Sinčić 1

1 University of Zagreb, School of Medicine, Department of Medical Biology, Laboratory for Epigenetics and Molecular Medicine, Zagreb, Croatia; 2 CH Dubrava, Clinical Department of Surgery; 3 Community Health Centre, Zagreb East; 4 Department of Clinical Pathology “Ljudevit Jurak” UHC Sestre Milosrdnice; 5 University of Zagreb, School of Medicine, Pathology Department

Testicular Germ Cell Tumours (TGCT), although rare, are the most frequent malignancies in young male population and believed to be initiated by epimutations, i.e. aberrant epigenetics, already in utero. Among various, teratoma is the most differentiated TGCT type encompassing all three germ layer derived tissues. Mouse teratoma is a well-established in vitro model which may be obtained by cultivating 7,5–days-old C3H mouse embryos and represent an ideal system to investigate the effect of the most prominent epigenetic drugs and agents.

After embryo isolation, they were treated for two hours with 5-azacytidine, Trichostatin A, Valproat, esiNanog, esiOct3/4 and esiTrrap, respectively. Embryos/teratomas treated with esiGFP served as a negative control. The embryos/teratomas were measured on day 0 and for the consequent 7 days of culturing, after which teratomas were scrapped, Sainte-Marie fixed and paraffin embedded for IHC analyses.

Epigenetic drugs and agents reduced significantly teratoma growth, with the exception of esiNanog and esiTrrap. Most prominent decrease in growth was determined in 5-azaC and esiOct3/4 treated embryos/teratomas.
IHC analysis of proliferative activity showed significant rise in Ki-67 signal in esiNanog and esiTrrap, as well as in 5azaC treated embryos/teratomas, compared to control. Apoptotic activity showed no significant change in any treatment.

This preliminary data notifies that epigenetic drugs and agents may have a significant effect on embryo/teratoma growth. It seems that teratoma growth is inhibited by necrotic activity rather than apoptosis which could consequently induce a rise in proliferation as a tissue reaction.

**Keywords:** epigenetics; DNA methylation; apoptosis; proliferation; TGCTs; mouse teratocarcinoma in vivo.

**APOPTOSIS IN NATIVE VEIN WALL IN FAILURE OF HEMODIALYSIS ARTERIOVENOUS FISTULAS**

Laura Leci-Tahiri ¹, Božo Krušlin ², Majda Vučić ², Zdenko Sonicki ³, Floriana Bulić-Jakuš ⁴, Ivo Lovričević ⁵

¹Clinic of Vascular Surgery, University Clinical Center of Kosovo, Prishtina, Kosovo; ²“Ljudevit Jurak” Department of Pathology, University Hospital Center “Sestre milosrdnice,” Zagreb, Croatia; ³Department of Medical Statistics, Epidemiology, and Medical Informatics, Andrija Štampar School of Public Health, University of Zagreb School of Medicine, Zagreb, Croatia; ⁴Department of Medical Biology, University of Zagreb School of Medicine, Zagreb, Croatia, ⁵Department of Vascular Surgery, University Hospital Center “Sestre milosrdnice,” Zagreb, Croatia

In line with the growing interest for studying apoptosis in blood vessels, this study is one of the first to assess the apoptosis in native veins used for arteriovenous fistulas (AVF) done for hemodialysis. The aim of this study was to evaluate apoptosis in previously punctured native veins (study groupy) compared with not punctured native veins (controls) in patients who undergo a surgical procedure for AVF as dialysis access. Cephalic vein specimens were obtained from 60 patients before the placement of AVF. Half of the specimens were from the previously punctured and half from non-punctured veins. A 1-cm long segment was excised from distal part of the cephalic vein, divided into two portions along longitudinal axis and prepared for immunohistochemical analysis. Immunohistochemical assessment and quantification of signals was used to evaluate the expression of Bax, p53, caspase 3 and Bcl-2.

Vein specimens from the study group with previously punctured veins showed significantly increased caspase 3 and Bax expression, compared with the control