Comparison of muscle-derived stem/progenitor cells and bone marrow mesenchymal stem cells for the treatment of acute kidney injury / Egle Pavyde, Romaldas Maciulaitis, Ernesta Ivanauskaite Didziokiene, Neringa Sutkeviciene, Justinas Maciulaitis, Mantas Malinauskas, Judita Zymantiene, Maksim Bratchikov, Arvydas Usas

Pavydė, Eglė; Mačiulaitis, Romaldas; Ivanauskaitė Didžiokienė, Ernesta; Sutkevičienė, Neringa; Mačiulaitis, Justinas; Malinauskas, Mantas; Žymantienė, Judita; Bratčikov, Maksim; Ūsas, Arvydas

Introduction. The skeletal muscle-derived stem/progenitor cells (MDSPCs) have been thoroughly investigated in preclinical studies. However, the therapeutic potential of MDSPCs for acute kidney injury (AKI) has only been evaluated by our research group. We aimed to compare MDSPCs with bone marrow mesenchymal stem cells (BM-MSCs) and to evaluate their feasibility for the treatment of AKI. Materials and methods. Rats were randomly assigned to one of four groups: healthy controls, AKI group, AKI treated with MDSPCs, AKI treated with BM-MSCs. AKI was induced by gentamicin (80 mg/kg/day; i.p.) for 7 consecutive days. PKH-26-labeled MDSPCs and BM-MSCs (1X106 cells/animal) were injected intravenously 24 hours after the last gentamicin injection. Physiological and histological kidney parameters were determined on day 0, 8, 14m 21m 28, 35 (6 animals per time point). Results. Both, MDSPCs and BM-MSCs accelerated functional kidney recovery and regeneration, as reflected by significantly lower serum creatinine levels and renal injury scoring, higher urinary creatinine and GFR levels ($p<0.05$) compared with the nontreated AKI group. PKH-26 labelled MDSPCs and BM-MSCs were present in the renal cortex on day 9, day 21 and day 35, indicating the capacity of both cell types to migrate and populate the renal tissue. There was no significant difference in any parameters between MDSPCs and BM-MSCs at any time points ($p>0.05$). [...].

Detali informacija

Publikacijos rūšis	Konferencijų tezės nerecenzuojamame leidinyje / Conference theses in non-peer-reviewed publication (T2)
Antraštė	Comparison of muscle-derived stem/progenitor cells and bone marrow mesenchymal stem cells for the treatment of acute kidney injury / Egle Pavyde, Romaldas Maciulaitis, Ernesta Ivanauskaite Didziokiene, Neringa Sutkeviciene, Justinas Maciulaitis, Mantas Malinauskas, Judita Zymantiene, Maksim Bratchikov, Arvydas Usas
Publikuota	2016-10-20
Apimtis	p. 19-19.
Leidinyje	The 7th International Pharmaceutical Conference Science and practice 2016, dedicated to the 240th anniversary of prof. Johann Friedrich Wolfgang : book of abstracts : October 20-21, 2016, Kaunas, Lithuania / Faculty of Pharmacy of Lithuanian university of Health Sciences [et al.]. Kaunas : Lithuanian university of Health Sciences, 2016. ISBN 9789955154549.
ISBN (leidinio)	9789955154549
Mokslo kryptis	Medicina / Medicine (M001)
	Farmacija / Pharmacy (M003)
Autorius	Pavydė, Eglė [Fiziologijos ir farmakologijos institutas (U520400), LT]

	Mačiulaitis, Romaldas [Fiziologijos ir farmakologijos institutas (U520400), LT]
	Ivanauskaitė Didžiokienė, Ernesta [Viešoji įstaiga Vilniaus universiteto ligoninės Santariškių klinikos, LT]
	Sutkevičienė, Neringa [Neužkrečiamųjų ligų katedra (U630300), LT]
	Mačiulaitis, Justinas [Lietuvos sveikatos mokslų universitetas (302536989), LT]
	Malinauskas, Mantas [Fiziologijos ir farmakologijos institutas (U520400), LT]
	Žymantienė, Judita [Anatomijos ir fiziologijos katedra (U630200), LT]
	Bratčikov, Maksim [Valstybinis mokslinių tyrimų institutas Inovatyvios medicinos centras, LT]
	Ūsas, Arvydas [Fiziologijos ir farmakologijos institutas (U520400), LT]
Meno kūrinio tipas	Originalus / Original
Aprašymas	ISBN 978-9955-15-454-9.
	Bibliogr.: p. 19
Mokslo kryptis	Medicina / Medicine (M001)
	Farmacija / Pharmacy (M003)
Reikšminiai žodžiai	Acute kidney injury; Gentamicins; Mesenchymal stromal cells; Muscle, skeletal; Stem cells
Documento rūšis	Pranešimas konferencijoje / Conference Paper
Šalis	Lietuva / Lithuania (LT)
Kalba	Anglų / English (en)
URI	https://hdl.handle.net/20.500.12512/18079
Bibliografinė informacija	3
Prieskyra	Medicinos Akademija
	Anatomijos ir fiziologijos katedra
	Neužkrečiamųjų ligų katedra (U630300)
	MA Medicinos fakultetas
	Veterinarijos Akademija
	Lietuvos sveikatos mokslų universitetas
	VA Veterinarijos fakultetas
	Fiziologijos ir farmakologijos institutas