Glomerular volume in patients who died due to intracranial haemorrhage

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Background: Results of some quantitative histopathological studies suggest that patients with essential hypertension are characterized by lower number and higher mean volume of kidney glomeruli (MGV). Intracranial hemorrhage is one of the common causes of death in the patients with hypertension.

Aim: The aim of the study was to evaluate MGV in kidney donors died due to intracranial hemorrhage.

Methods: Into the retrospective study medical records from cadaveric kidney donors harvested between 2005 and 2010 were included. In all cases preimplantation kidney biopsies ("zero biopsies") were performed. MGV was evaluated in specimens of "zero biopsies". The results were shown as a median and 95 CI.

Results: Analyzed group consisted of 34 cadaveric kidney donors who died due to intracranial hemorrhage [18 females and 16 males; age 49 years (42-51), kidney weight 191.0g (174.1-208.7) and serum creatinine concentration 104 µmol/l (89-174)]. The control group consist of 20 patients who died due to brain injury [3 females and 17 males, age 41 years (30-44), kidney weight 187.0g (164.2-212.7) and serum creatinine concentration 97 µmol/l (81-236)]. Entire medical history of cadavers (including history of hypertension) were not available for all kidney donors. Kidney donors died due to intracranial hemorrhage characterized by significant higher MGV than donors died due to brain injury (Fig.1).There were also significant differences of MGV in tercils of cadaveric donors age (Fig.2). The significant positive correlation was found between median MGV and donors age in the combined grup (Fig.3).

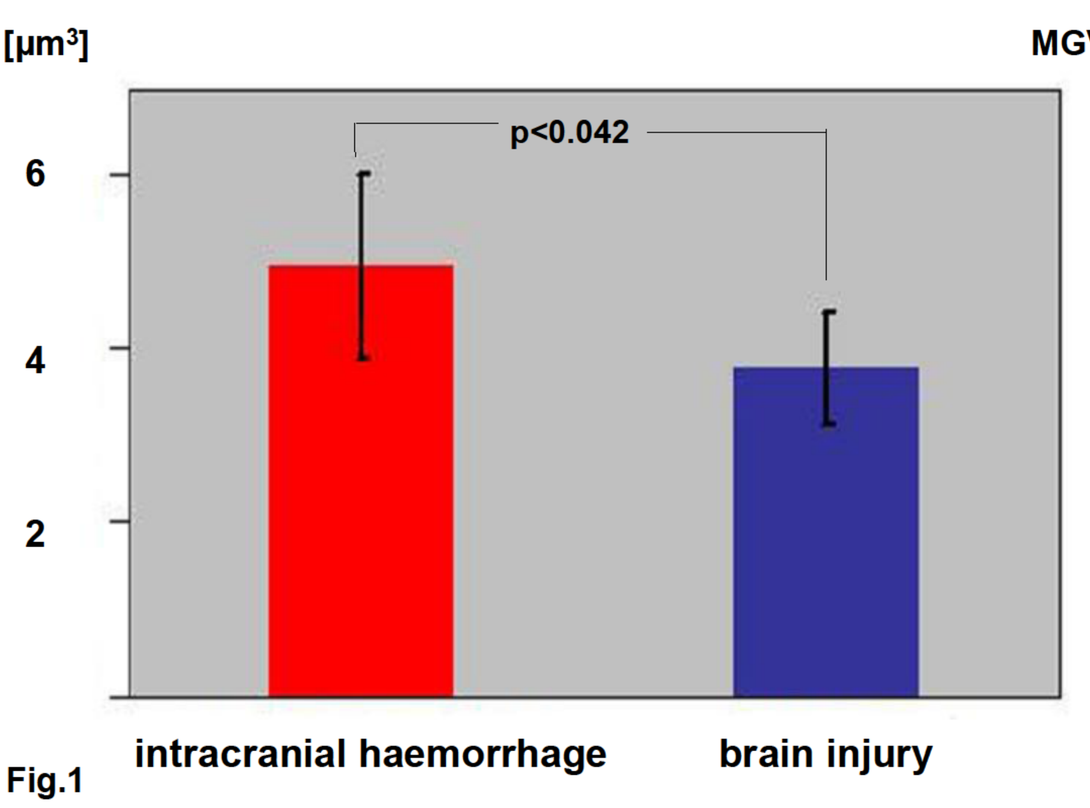


Fig.1

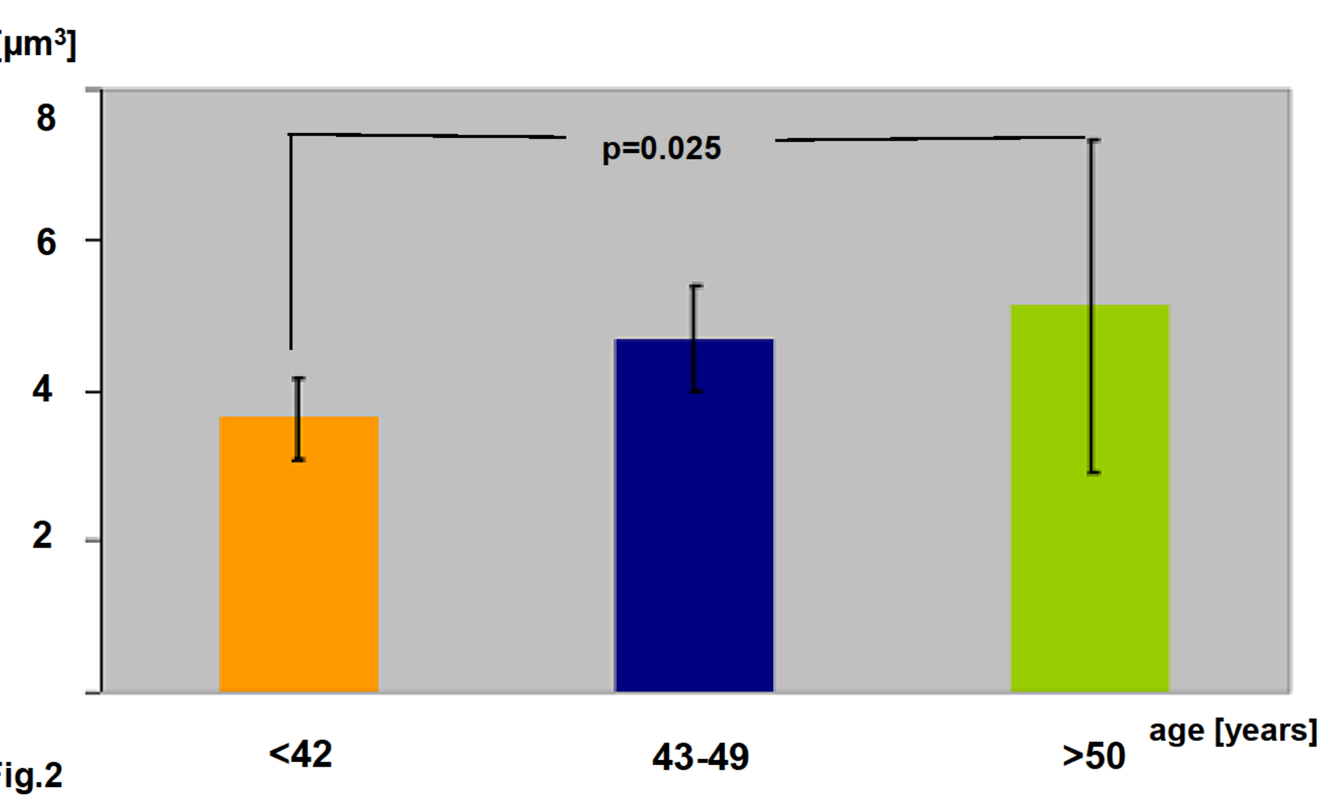


Fig.2

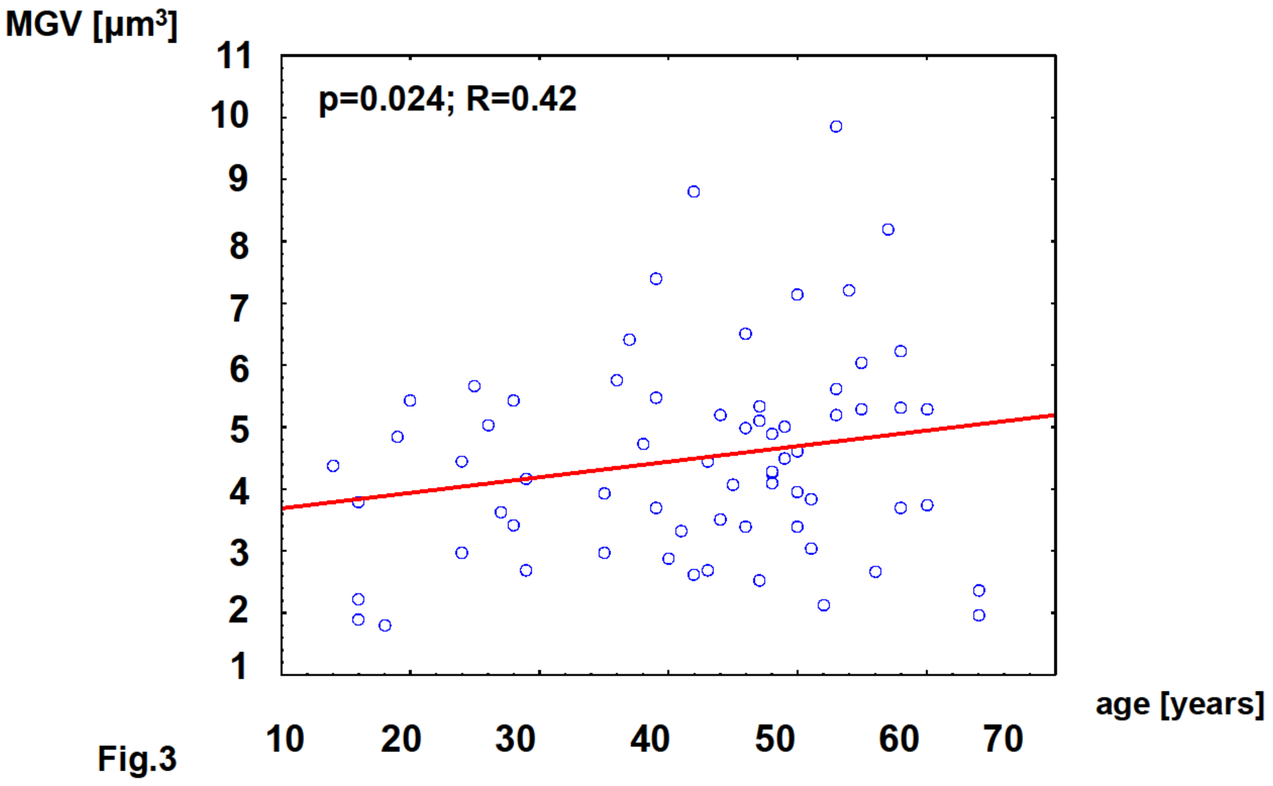
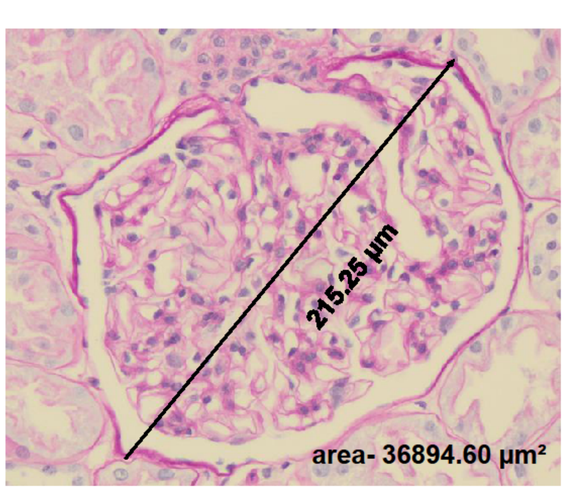
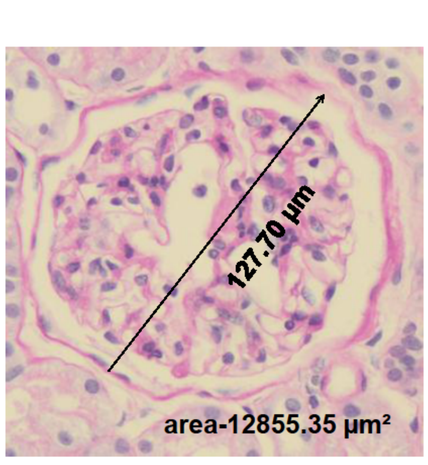


Fig.3



Representative glomerulus of donor who died due to intracranial haemorrhage
Magnification 400x



Representative glomerulus of donor who died due to brain trauma
Magnification 400x

Conclusions: 1. Kidney harvested from patients who died due to intracranial hemorrhage most probably as a consequence of high blood pressure are characterized by significantly higher MGV. 2. Further studies are needed in order to assess the long term outcome and graft function of kidneys with higher MGV.

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