The glioblastoma was well known, in the 1860s, to Virchow who appreciated the lesion’s infiltrative nature and relation to lower grade astrocytoma in some cases. Other seemingly more discrete types would, presumably, today be considered “primary.” It remained until 2008 for a molecular correlation, mutations in IDH1 or IDH2, to become clear. Later, Scherer was instrumental in refining the “secondary” subtype. Vascular proliferation was recognized and presciently presumed by Scherer to result from vasostimulatory factors released by the tumor. Decades later, Bevacizumab was created to block VEGF, unsuccessfully thus far insofar as overall survival is concerned. Discovery of tumor suppressor genes and oncogenes began with the first description of EGFR overexpression in 1984. Gains of chromosome 7 and losses of 10 were recognized at about the same time. The EGFRvIII variant was identified, and clinical attempts to target EGFR abnormalities continue today. Epigenetic influences on tumor development became apparent first in the role of MGMT and its interaction with effects alkylating agents. The pervasive influence of epigenetic mechanisms is increasingly appreciated. The role of micro RNAs, some of the latter with multiple targets, adds another layer of complexity. A lesion long known to be complex is thus even more so at closer and closer inspection. Glioblastomas now can be divided into subgroups on the basis of genetics, epigenetics, methylation profiles, micro RNAs, etc. Inter- and intratumoral heterogeneity is now well known. Recognition of therapeutic opportunities, and obstacles, continues to evolve.
unusual cases that emerge early and show a more severe disease course. The aim of this study was to investigate the clinical characteristics, morphological changes and pathogenesis of early onset cardiomyopathy in female LAMP2 mutated carriers. We investigated the explanted heart and skeletal muscle biopsies in two girls aged ten and thirteen years who underwent cardiac transplantation because of hypertrophic cardiomyopathy due to de novo heterozygous LAMP2 mutations and one 41-year-old female with late-onset familial LAMP2 cardiomyopathy with more typical clinical phenotype. We found no evidence of skewed X-chromosome inactivation in the two young girls since both alleles were expressed at apparently similar levels. In accordance with this finding skeletal muscle biopsy revealed no pathological changes. Immunohistochemistry in cardiact muscle showed a remarkable pattern with lack of LAMP2 protein in large regions including thousands of cardiomyocytes that also showed myocyte hypertrophy, lysosomal enlargement and disarray. In other equally large regions there was preserved LAMP2 expression and nearly normal histology. An uneven distribution of LAMP2 protein may cause deleterious effects depending on which regions of the myocardium that are lacking LAMP2 protein in spite of an overall moderate reduction of LAMP2 protein. This may be a more common mechanism behind early aggressive disease in females than skewed X-chromosome inactivation.

P12-03
Galactose consumption caused severe inflammation and amyloid fibril accumulation in brain especially in hypercholesterolemic state
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Exposure of galactose is associated with brain aging, although there has been little information about consumption of monosaccharide (galactose, fructose, and glucose) and brain damage under hypercholesterolemic state. Treatment of galactose to apoA-I (final 250 mM) resulted increase of advanced glycation end (AGE) product in lipid-bound state as similar as fructose treatment, while lipid free apoA-I resulted increase of advanced glycated end (AGE) product in lipid-cholesterol state. Treatment of galactose to apoA-I (final 250 mM) has been little information about consumption of monosaccharide. Exposure of galactose is associated with brain aging, although there is no definite information about consumption of monosaccharide (galactose, fructose, and glucose) and brain damage under hypercholesterolemic state. Treatment of galactose to apoA-I (final 250 mM) resulted increase of advanced glycation end (AGE) product in lipid-bound state as similar as fructose treatment, while lipid free apoA-I showed less production of glycated end product. Treatment of galactose (final 250 mM) into human HDL1 caused more smear band with retarded electromobility compared with treatment of fructose and glucose. Galactose treated HDL1 did not prevent uptake of oxLDL into macrophages. Treatment of galactose into apoA-I caused severe structural modification as similar as fructose treatment. Gal-treated apoA-I lost phospholipid binding ability and could not inhibit cupric ion mediated LDL oxidation, while native apoA-I inhibited. During 9-week consumption of monosaccharide, galactose-consumed zebrafish showed swimming defect with severe inflammation. Under hypercholesterolemic diet, galactose consumed group showed the lowest survival with dosage dependent manner. In normal diet group, total cholesterol and TG was not changed by the galactose consumption. However, the swimming defect was associated with loss of cell nucleus, increase of inflammation, accumulation of amyloid fibril in brain. Especially in galactose and high cholesterol diet, nucleus was more severely disappeared and accumulation of amyloid fibril was more detected with dosage dependent manner. Conclusion, treatment of galactose caused modification of lipoproteins and consumption of galactose induced severe inflammation and amyloid accumulation with swimming defects.

P13-01
Nanofibers mats – a new perspective for experimental studies of the nervous system
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Introduction: Introduction of nanotechnology into medicine has provided new therapeutic options. It has been demonstrated that implantation of nanofiber mats after nerve system injury allowed to diminish scar size and inflammatory reaction. It is also possible that, due to their ability to release active factors, nanofiber mats may replace intracerebral probes. To assess potential usefulness of nanofiber mats in releasing active substances we implanted them into the spinal cord subarachnoid space in adult Wistar rats.

Material and Method: The experimental animals were divided into four groups: group 1 – rats with implanted nanofiber mats, group 2 – rats with implanted nanofiber mats releasing glutamate, group 3 – rats with nanofiber mats releasing glutamate and treated orally by sodium valproate, and group 4 – control animals without nanofiber mats. The animals were killed 21 days after the mate implantation. Then, histopathological, immunohistochemical and ultrastructural evaluation of the spinal cords was performed.

Results: Morphological assessment revealed that implantation of nanofiber mats caused neither spinal cord damage nor inflammation (group 1). Also nanofiber mats releasing glutamate did not produce inflammatory reaction (group 2 and 3) although in group 2 morphological changes indicating toxic influence of glutamate were observed. These changes were less severe in group 3.

Conclusions: (1) Nanofiber mats are biocompatible and can be useful in long-term animal experiments. (2) Nanofiber mats are able to release glutamate into the subarachnoid space. (3) Sodium valproate has a protective influence against glutamate toxicity.