^{18}F-F13714 binding in the hippocampus as compared with those under the anesthetic condition, suggesting the effect of isoflurane on serotonin release in the hippocampus. These results showed that the PET experiment with ^{18}F-F13714 is feasible for mapping and quantifying 5-HT_{1A} receptor in the marmoset brain.

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Possible modulation of dopaminergic neurotransmission function by acetyl-L-carnitine

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Acetyl-L-Carnitine (ALC) has a putative neuroprotective effect being used in a variety of conditions. Nevertheless, the underlying molecular mechanisms, particularly regarding the induction of changes in neurotransmitter systems, are still not fully understood. We aim to contribute for the elucidation of the mechanisms by which ALC alters neurotransmitter release, using a cell line and an animal model of exposure to methamphetamine (METH). PC12 cells were incubated with several doses of ALC (0.01 to 1.0 mM) alone or in combination with METH 1.0 or 100 µM for 24h or 72h. When combined, ALC preceded METH administration in 30 minutes. Dopamine (DA) content was determined by high performance liquid chromatography. C57BL/6J mice were used for in vivo assays to assess DA striatal binding. Mice were divided into 4 groups, according to different treatments: group 1 (control), group 2 (ALC, 100 mg/kg), group 3 (METH, 10 mg/kg) and group 4 (ALC+METH). Images were acquired in a SPECT/CT scanner (NanoSPECT/CT, Mediso, Hungary) 70 minutes after 123I-IBZM injection. Regions of interest were drawn in the striata and in the cerebellum to determine the striatal binding ratio. Increased intracellular levels of DA were observed in PC12 cells at 24h and 72h after the administration of ALC. Cells treated with METH 100 µM displayed decreased intracellular levels of DA. ALC prevented the METH-induced decrease in DA concentration ($p<0.0001$). On the other hand, a single dose of 10 mg/kg of METH induced a decrease in striatal D2R binding ratios comparing to control group (between 20% and 30%). Interestingly, over time, ALC was able to reverse the decrease on the radiotracer binding induced by METH. The present study indicates a possible effect of ALC over METH-induced DA release.

P54 — Tuesday, October 21, 2014, 16:00 — 16:30, Poster Exhibition Area

Neurosciences : Movement Disorders

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DaTscanTM in movement disorders, negative predictive value; our experience

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Aim Follow-up of patients with normal DaTscanTM should help determine whether such patients truly have degenerative parkinsonism or emerge as cases of non-degenerative parkinsonism. Review these studies, its values and search for the impact on neurologists on clinical management, diagnosis and treatment. Material and methods A two year retrospective study was conducted (08.11-08.13), selecting patients referred to our department to perform a DaTscanTM. SPECT imaging took place 3 hours after intravenous injection of 123I-Ioflupane (mean injected dose, 185 Mbq). Results were assessed qualitatively and semiquantitatively by three experienced nuclear physicians, selecting scans with no dopaminergic deficiency based on a symetrical uptake of the tracer in both right and left putamen, caudate nuclei and on StriatumTotal/Occipital ratios(reference: occipital region).Subsequent confirmation of final subject conditions was by clinical diagnosis (truth standar).Follow-up time was total period (months) after scan until last clinical assesment. Results 77 out of 341 patients were classified as non-degenerative cases based on DaTscanTM. 50 women and 27 men(mean age 67.52 years). Mean follow-up time was 7.12 months (range, 1-21).No interfering medication was associated, except in two patients on bupropion and fentanyl.Tremor was present in all patients except 13 (16.88%)with evidence of some bilaterality in 29(37.66%).Typical degenerative parkinsonism presentation was described in one patient.Semiquantitative analysis showed mean values of 4.14 right putamen, 4.15 left putamen, 4.44 right caudatum and 4.48 left caudatum. Estriatum total/Occipital mean value was 4.30±1.56 2sd(range, 2.88-6.14).The values of all 77 patients were higher than 2.74(mean-2sd).39 patients out of 77(50.64%)were on antidepressants ,11(14.28%) on neuroleptics and 25(32.46%)on levodopa when scan performance. Levodopa was removed in 9 patients out of 25(36%)after DaTscanTM results and maintained in 16 (false negatives), considered as degenerative cases based on clinical features and good response to treatment.Negative predictive value(NPV)was 79%.Final subject conditions were;18(29.50%)diagnosed as essential tremor,16(26.22%)as drug-induced parkinsonism,1(6.1%)as vascular disease , 17(27.86%)as other non-degenerative affections and 9(14.75%)unnamed conditions. Conclusions DaTscanTM is frequently requested in our area by neurologists. Non-typical presentation of parkinsonism is the case in most of the patients.Treatment with antidepressants is frequently associated.A non-degenerative etiology is supported by a normal SPECT with 123I-Ioflupane,with adequate NPV.Estriatum total/Occipital ratio supports visual assessment. Treatment with levodopa is maintained according to clinical outcome despite a normal scan.Essential tremor is the most common final condition.Limitations of using DaTscanTM results should be taken into account in the absence of pathological confirmation. Stricter clinical criteria would reduce the misdiagnosis rate in those with normal SPECT.

P931

Does 123I-MIBG SPECT Have an Incremental Value on Identification of Patients Suspected of Lewy Body Diseases?

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AIM To determine an incremental value of 123I-MIBG SPECT innervation imaging to identify patients suspected of Lewy body diseases (LBD). MATERIALS AND METHODS 64 consecutive patients who underwent 123I-MIBG SPECT for differential diagnosis between dementia with Lewy bodies (DLB) and other dementia (n=31) or between Parkinson's disease (PD) and other parkinsonism (n=33). Patients were evaluated by a neurologist expert in memory disorders to determine the final clinical diagnosis by using international clinical diagnosis criteria. Planar (heart to mediastinum ratio (HMR)) and 123I-MIBG SPECT (Innervation Defect Score (IDS)) using the 17-segment LV model (five point-scale) were obtained 4 hours after the injection of 227±96 MBq of 123I-MIBG on LEHR collimator. ROC analysis was performed to determine the optimal HMR and IDS cut-off values to discriminate between LBD from other diseases. RESULTS LBD was clinically diagnosed in 45 pts; DLB in 27 pts and other dementia in 5 pts; PD in 18 pts and other parkinsonism in 14 pts. HMR and IDS of LBD patients were significantly different from those of patients without LBD (1.30±0.21 vs 1.65±0.26, $p<0.001$; 39.3±28.2 vs 7.6±16.3, $p<0.001$). HMR and IDS of DLB pts and pts with other dementia were significantly different (1.29±0.22 vs 1.80±0.24, $p= 0.028$; 42.3±29 vs 7.6±10.4, $p=0.022$). IDS of DLB pts was 68 in 14 pts with HMR <1.2 and 14.5± 15.3 in 13 pts with HMR of <1.5 ($p=0.0001$). HMR and IDS of PD pts and other parkinsonism were significantly different (1.32±0.19 vs 1.6±0.25, $p=0.0013$; 36.6±27.2 vs 7.6±18.3, $p=0.006$). IDS of PD pts was 68 in 7 pts with of HMR <1.2 and 16.5±11.3 in 11 pts with HMR <1.5 ($p=0.0001$. HMR and IDS of PD and DLB patients were no significantly different. The optimal HMR and IDS cut-off values to discriminate LBD patients (n=45) from others (n=19) were 1.47 and 6/68, providing sensitivity and specificity of 82.2% and 84.2%; 86.7% and 73.7%, respectively ($p = 0.76$). CONCLUSION Regional myocardial denervation imaging using 123I-MIBG SPECT seems to be more sensitive than planar imaging to detect LBD and may have an incremental value to differentiate early LBD patients from other dementia and parkinsonism.