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Introduction Seizure disorders have been identified in patients suffering from different types of dementia. However, the risks associated with the subtypes of those seizures have not been characterized.
Objective/aim To compare the occurrence of seizure disorders (partial and generalized) between patients with and without a dementia diagnosis from the OPTUM database.
Methods All ages, and patients with full eligibility between January of 2005 to December of 2014, were included. Data from OPTUM, a de-identified, HIPAA compliant database, made up of 40.7 million private insured patient individual electronic health records from the US, were utilized. Using ICD-9 diagnoses, the occurrence of generalized or partial seizure disorders was identified. A comparison between patients with and without dementia was performed.
Results A total of 150,516 patient records had a dementia diagnosis, and, 56.38% of them were females. Patients with dementia when compared to those without dementia had higher risk for seizure disorders [odds ratio (OR) = 6.5 95% CI = 4.4–9.5]; grand mal status (OR = 6.5, 95% CI = 5.7–7.3); partial seizures (OR = 6.0, 95% CI = 5.5–6.6); motor simple partial status (OR = 5.6, 95% CI = 3.5–9.0); epilepsy (OR = 5.0, 95% CI = 4.8–5.2); complex partial epileptic seizures (OR = 4.9, 95% CI = 4.6–5.2); generalized convulsive epilepsy (OR = 4.8, 95% CI = 4.5–5.0); localization-related epilepsy (OR = 4.5, 95% CI = 4.1–4.9); petit mal status (OR = 4.2, 95% CI = 2.9–6.1); fits convulsions (OR = 3.5, 95% CI = 3.4–3.6); and complex febrile seizure (OR = 2.5, 95% CI = 1.6–3.9).
Conclusions The present study confirms that patients with dementia have higher risks for either generalized or partial seizures disorders when compared with patients without dementia.
Disclosure of interest The authors have not supplied their declaration of competing interest.

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EW109

Effects of BET inhibitor JQ1 on neurotoxicity in rat primary cortical neurons: A potential therapeutic approach in Alzheimer's disease

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Introduction The neuropathological features of Alzheimer's disease (AD) are deposition of amyloid plaques, neurofibrillary tangles and neuro-inflammation. Among these, neuro-inflammation is a common pathological substrate of neurodegenerative disease, such as AD, and Parkinson disease.
Aims Herein, we tested whether the inhibition of bromodomain and extra-terminal domain (BET) protein, a critical regulators of transcription in neurons, could attenuate the neuronal cell death and amyloid beta aggregation using rat primary cortical neurons. We also investigated whether a BET inhibitor could prevent the inflammatory processes and cognitive decline in an animal model of AD.
Methods The effects of BET inhibition on neuronal cell death were assessed in the followings:
– cell viability and reactive oxygen species generation;
– enzyme activity of tPA/PAI-1 measured by casein zymography;
– the signal pathways including BDNF/CREB and MAPKs using western blotting;
– the effects on inflammatory responses in an animal model of AD using immunohistochemistry.
Results JQ1, an inhibitor of Brd2/4 protein, significantly decreased the neuronal cell death in mixed cortical neurons in concentration-dependent manner but not in pure neurons. JQ1 increased the enzyme activity of tPA, which decreased the expression of Brd2 protein. JQ1 also decreased the ROS generation and decreased cleaved caspase-3 expression. Moreover, Brd2 inhibition by transfection of Brd2 siRNA reduced amyloid beta aggregation.
Conclusion Our results suggested that BET inhibition might have therapeutic potential for AD. That is, Brd2 inhibition by JQ1 can prevent the neuronal cell death and neuroinflammation as well as amyloid beta aggregation through regulation of tPA/PAI-1 system.
Disclosure of interest The authors have not supplied their declaration of competing interest.

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EW110

Cognitive engagement profile of the fluency tasks performance by patients with schizophrenia

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Introduction Fluency tasks, e.g. verbal, design fluency test, etc. are often used in the evaluation of cognitive function in patients with schizophrenia. In the standard approach, the test result is the sum of stimuli generated in a given time period. However, this approach does not allow to determinate of what strategies are used by subjects to regulate the cognitive engagement during task execution.
Aim To investigate the specific dynamic profile of fluency tests performance comparing with healthy controls.
Methods Thirty patients diagnosed with schizophrenia and 30 demographically matched healthy controls took part in the study. Participants performed two tests: COWAT (3 trials) and Ruff Figural Fluency Test in accordance with the original instructions. During the generation of these stimuli, the investigator wrote down their quantity in 15-second intervals, which enables the assessment of cognitive engagement variability in different parts of the whole time (1 minute).
Results Comparison of cognitive engagement variation in both fluency tests showed statistically significant differences. The differences in repeated measures ANOVA with group as an independent variables reached $P < 0.0001$. Factor differentiating the profiles in verbal and figural fluency was first 15 seconds after the tasks started.
Conclusions The beginning of task was the most difficult part for patients with schizophrenia, which may indicate that the overall worse performance of fluency tests is associated with significant difficulties in mobilizing the cognitive activity.
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