putamen and left hippocampus, right putamen and right caudate nucleus, left superior frontal and right inferior orbitofrontal regions, as well as long-range connections between left and right occipital cortex and left cingulate gyrus, left supramarginal gyrus and right temporal pole. Two negative correlations between the SVM decision scores for ROP and measures of the RAVLT were significant (delayed recall: r=-0.3, Bonferroni –adjusted p<.04; recall after interference: r=-0.3, Bonferroni-adjusted p<.02).
Discussion: The classification performance was driven by a rsFC pattern including areas involved in memory processing, such as hippocampus and cingulate gyrus (Allen et al., 2007) as well as regions related to language processing, such as the supra marginal gyrus (Li et al., 2009). The negative correlation of rsFC-based decision scores with RAVLT measures shows that patients whose verbal learning and memory is more severely impaired exhibit a more distinctive rsFC pattern than patients with less impaired verbal memory.

T138. ACOUSTIC PATTERNS IN SCHIZOPHRENIA: A SYSTEMATIC REVIEW AND META-ANALYSIS

Alberto Parola*[,1], Arndis Simonsen[2], Vibeke Bliksted[2], Riccardo Fusaroli[2]
[1]University of Turin; [2]Aarhus University

Background: Individuals with schizophrenia are characterized as presenting atypical voice patterns: poverty of speech, increased pauses, distinctive pitch (mean and variability). Voice atypicalities may play a role in the social impairment experienced by patients, and could constitute a window into motor, cognitive, emotional and social components of the disorder. Indeed, they have already been generally associated with negative symptoms. However, the state of the evidence for atypical voice patterns and their relation to clinical features is uncertain. Studies using clinical rating scales indicate that voice alterations are severe across many voice properties. In contrast, quantitative acoustic studies seem to have found less robust and more variable results limited to specific features. We therefore systematically reviewed the literature quantifying acoustic patterns in schizophrenia, and performed a meta-analysis of the evidence. We aimed at identifying evidence for acoustic markers of schizophrenia and its clinical features, needs for further research and barriers to collective advancements on these issues.
Methods: We adopted the "PRISMA Statement" guidelines for transparent reporting of a systematic review. The literature search was conducted on Pubmed and Google Scholar (details and pre-registration at https://goo.gl/H1yDpm). Study selection was conducted according to the following inclusion criteria: (a) empirical study, (b) quantification of acoustic features in the vocal production of participants with schizophrenia, (c) sample including at least two individuals with schizophrenia, (d) inclusion of a comparison group, or an assessment of variation in acoustic features in relation to severity of clinical features. We identified 54 studies as eligible for inclusion and contacted all authors to obtain missing estimates and individual-level data, where possible. 34 studies availed enough information to be included in a meta-analysis. The meta-analysis consisted of mixed effects regression models, one per each relevant acoustic feature.
Results: Of the 37 authors contacted, 59% responded and 5% provided at least some of the requested data. Chief reasons of denials were: i) data loss (n = 8), ii) effort required (n = 5), iii) ethical concerns with data sharing (n = 1). On the results available we found significant meta-analytic effects of schizophrenia in percentage of spoken time (n = 6, d = -1.16, 95% CIs: -2.06 -0.27) and proportion of pauses (n = 5, d = 0.56, 95% CIs: 0.15 0.96). After controlling for influential studies, we found significant differences also in pitch mean (n = 5, d = 0.40, 95% CIs: 0.12 0.68) and pitch variability (n = 6, d = -0.46, 95% CIs: -0.70 -0.23). No effects were found for pause duration (n = 7), speech rate (n = 9), speech duration (n = 5) and pitch intensity (n = 5). We found evidence for publication bias for studies investigating pause duration and pitch variability.
Key concerns on the meta-analysis are: i) small sample sizes, ii) heterogeneity of task and acoustic processing methods, iii) lack of demographic and clinical individual-level data necessary to control for confounds (e.g. medication and relation to clinical features).
Discussion: We found clear effects of increased pause behavior in schizophrenia and less clear effects of pitch. However, the magnitude of these abnormalities is limited and contrast with the large effect sizes reported by studies using clinical rating scales. Future research should focus on larger sample sizes, systematic assessment of multiple acoustic features and multiple speech tasks, standardized acoustic processing methods, and individual level data available. More reflection is needed on how to make data sharing possible within privacy and ethical constraints.

T139. ELECTRORETINOGRAM ABNOMALIES IN SCHIZOPHRENIA PATIENTS WITH VISUAL HALLUCINATIONS

Vincent Laprevote*[,1], Florent Bernardin[1], Thomas Schwitzer[1], Raymund Schwan[1]
[1]Centre Psychothérapique de Nancy

Background: Retinal dysfunctions have been integrated in cognitive models of visual hallucinations in several pathologies such as Parkinsonian syndromes or eye diseases. Besides, structural abnormalities of the retinal ganglion cells are documented in schizophrenia and have been associated to visual hallucinations (VH) in neurological disorders. We aim to study functional abnormalities of retinal ganglion cells in schizophrenia patients with VH.
Methods: We measured the activity of retinal ganglion cells using electroretinogram according to ISCEV criteria. We compared the amplitude and implicit time of the P50 and the N95 waves of the pattern electroretinogram in schizophrenia patients with VH (VH group, n = 7), Auditory Hallucinations or no hallucination (AH/NH group, n = 8) and controls (n = 30).
Results: Preliminary findings show a significant increase of the N95 implicit time in the HV group compared with controls (p = .05). No difference was found between the HV and HA/NH groups but a gradient appeared to emerge between the 3 groups.
Discussion: Functional impairment of the retinal ganglion cells appears to be more pronounced in schizophrenia patients with HV. The increase of N95 implicit time may be interpreted as a dysfunction of retinal ganglion celles rather than a cell loss. These preliminary results need to be confirmed with a larger sample.

T140. RESTING STATE NETWORKS ALTERATION IN SCHIZOPHRENIA

Gianluca Mingoia*[,1], Igor Nenadic[2]
[1]RWTH Aachen University; [2]Jena University Hospital

Background: While functional MRI and PET studies have shown altered task-related brain activity in schizophrenia, recent studies suggest that such differences might also be found in the resting state (RS). Here we used ICA based analysis to investigate RS fMRI data to compare connectivity of 11 well known networks (Auditory, Cerebellum, DMN, Exectutive Control, Fronto-parietal 1, Fronto-parietal 2, Salience, Sensorimotor, Visual1, Visual2, Visual3 network) between patients with schizophrenia and healthy controls suggesting deficits in related neuropsychological functions.
Methods: We obtained RS fMRI series (3T, 3x3x3mm resolution, 45 slices, TR 2.55s, 210 volumes) in 25 schizophrenia patients (mean age 30a±7.3), on stable antipsychotic medication and 25 matched healthy controls (30.3a±8.6). Subjects were asked to lie in the scanner keeping eyes closed with no further specific instructions. Data were pre-processed; we applied

Downloaded from https://academic.oup.com/schizophreniabulletin/article-abstract/44/suppl_1/S169/4957480
by guest
on 01 April 2018