especially among the men [unadjusted hazard ratio (95% confidence interval); all: 1.56 (1.11–2.19), p = 0.011, men: 1.46 (1.01–2.10), p = 0.042, women: 1.16 (0.43–3.11), p = 0.764], whereas between men with or without retained testicle before age 13, the risk of schizophrenia or schizoaffective disorder did not differ.

Conclusions: This study shows that inguinal hernia diagnosed before age 13 is associated with an increased risk of schizophrenia or schizoaffective disorder, especially in men. The association, which is of special interest as it is independent of the lifestyle and antipsychotic drug therapy after onset of the psychotic illness [2,3,4], may point to a common biological basis for the development of inguinal hernia [5] and schizophrenia or related psychosis.

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P.3.b.017 Neurophysiological correlates of negative symptom domains in schizophrenia

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Introduction: Negative symptoms represent a core aspect of schizophrenia. They have been associated to poor functional outcome, worse quality of life and poor response to pharmacological treatment. Recent factor analytic studies have reported that negative symptoms can be divided into two domains: avolition, which includes apathy, anhedonia and asociality and the expressive deficit domain, which includes alogia and blunted affect [1]. This subdivision, while clinically relevant, yet lacks neurobiological support showing selective associations of these subcomponents to brain functional states.

Aims. In the light of these observations, using brain electrical microstates (MS) which reflect global, subsecond patterns of functional connectivity, our primary aims were: (1) to identify differences between healthy controls (HC) and patients with schizophrenia (SCZ) in brain electrical microstate parameters and (2) to investigate the different neurobiological underpinnings of negative symptom domains.

Methods: We analyzed multichannel resting EEGs in 142 SCZ and in 64 HC, recruited within the Italian Network for Research on Psychoses. The microstate analysis was performed using an in-house plugin for Brain Vision Analyzer. Based on the microstate map templates from a large normative study [2] four microstates classes (MS-A to MS-D) were quantified in terms of relative time contribution, duration and occurrence. Negative symptoms were assessed using the Brief Negative Symptoms Scale (BNSS): Avolition was obteined by summing the scores on the subscales Anhedonia (consummatory and anticipatory anhedonia), Apathy and Asociality; Expressive deficit was computed by summing the scores on the subscales Blunted Affect and Alogia [3]. Analysis of variance (ANOVA) was used to test group differences on MS parameters. Pearson's r coefficients were computed to investigate the correlations of MS measures with the two negative symptom domains (avolition and expressive deficit) and their component symptoms.

Results: There was no significant group difference in sex ($p = 0.073$) and age ($p = 0.547$) between SCZ and HC. SCZ, in comparison to HC, showed increased contribution ($p = 0.009$) and duration ($p = 0.016$) of MS-C. As regard to negative symptoms, the total score of the BNSS was positively correlated with the contribution of MS-A ($r = 0.19$, $p < 0.03$). Only avolition ($r = 0.22$, $p < 0.01$) and not expressive deficit ($r = 0.12$, $p = 0.15$) was correlated with contribution of MS-A. Within the avolition domain, anticipatory anhedonia ($r = 0.20$, $p = 0.02$), apathy ($r = 0.20$, $p = 0.02$) and asociality ($r = 0.25$, $p = 0.003$), but not consummatory anhedonia ($r = 0.13$, $p = 0.13$), were positively correlated with MS-A.

Conclusion: Our findings, in line with previous studies, reported an increased contribution of MS-C in SCZ [4]. MS-C was not associated with the psychopathology, representing probably a trait marker of the disease. As regard to negative symptoms, our results support different neurobiological underpinnings of avolition and expressive deficit and suggest that avolition and anticipatory anhedonia share the same neurobiological correlates. This is in line with findings showing in SCZ intact hedonic experience but impairments in generating representations of hedonic values for past or future experiences (anticipatory anhedonia) [5]. Progress in this field might improve the development of innovative treatments, either pharmacological and rehabilitative, for negative symptoms in schizophrenia.

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P.3.b.018 Electrophysiological and neurocognitive correlates of the disorganization factor in schizophrenia

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Introduction: In subjects with schizophrenia, several factor-analytic studies attempted to define the disorganization dimension [1] that does not appear to be affected by age, severity of other symptoms and chronicity of illness and was found to be a strong predictor of real-life functioning, through functional capacity and social cognition [2]. Using PANSS [3], conceptual disorganization (P2), difficulties in abstract thinking (N5) and poor attention (G11) are considered core features of the disorganization factor. These core features seem to have an overlap with neurocognitive functions. However, the heterogeneity of this factor and its neurobiological basis should be further investigated.

Aims: In the context of the multicenter study of the Italian Network for Research on Psychoses, the main aims of our study were to investigate electrophysiological and neurocognitive correlates of the disorganization factor and to understand if PANSS item included in the disorganization factor have different biological basis.

Methods: We examined resting state EEGs in 145 stabilized subjects with schizophrenia (SCZ) and 69 matched healthy controls (HC). Neurocognitive functions were rated using the Matrics Consensus Cognitive Battery (MCCB; 4). Spectral amplitude was quantified in nine frequency bands. All statistical analyses of the scalp multichannel spectral amplitude data were performed using Ragu software (5). In particular, statistical comparisons between the spectral amplitude (SAmp) maps of SCZ and HC were assessed by topographic analyses of variance (TANOVA). In SCZ, in order to identify putative spectral correlates of variance for deficits in the cognitive domains, PANSS disorganization, and its component items, we used topographic analyses of covariance (TANCOVA) and, where significant, further explored with sLORETA source estimates.

Results: TANOVAs, comparing the spectral amplitude maps of HC and SCZ, revealed that SCZ showed increased Delta, Theta, and Beta 1 and decreased Alpha 2 SAmp.

When the clinical variables were correlated to the SAmp maps in the SCZ group, we found that the disorganization score was significantly correlated to the Alpha1 frequency band. This relation was negative and most pronounced at occipital sites. When investigating component items, we found only the correlation between "Difficulty in abstract thinking" and Alpha 1 band.

MCCB neurocognitive composite score was associated with "Conceptual disorganization" and "Difficulties in abstract thinking." No significant correlation between Alpha1 band and MCCB cognitive domains was observed. A significant association of current density of Alpha1 and "Difficulties in abstract thinking" in left Precuneus, Middle Temporal and Occipital cortical areas was observed.

Conclusions: Our results indicate that disorganization dimension is heterogeneous and has a partial overlap with neurocognitive domains. The "Difficulties in abstract thinking" had a unique association with Alpha1 activity, which is thought to be involved in the formation of conceptual maps and recombination of distantly related semantic information. The association of Alpha1 with N5 suggests that some features of disorganization could be underpinned by the impairment of basic neurobiological functions that are only partially evaluated using MCCB.

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P.3.b.020 Cariprazine vs risperidone efficacy on predominant negative symptoms of schizophrenia: post hoc analysis of negative symptoms subdomains

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Introduction: Schizophrenia is a complex disorder comprising positive, negative, and mood symptoms, as well as cognitive impairment. Negative symptoms of schizophrenia affect 15–60% of patients. In recent years, primary and secondary negative symptoms as well as sub-domains of negative symptoms (avolition and asociality, and expressive deficit) have been recognized [1]. Cariprazine, a potent dopamine D3 and D2 receptor partial agonist with preferential binding to D3 receptors, is FDA approved for the treatment of schizophrenia and bipolar mania in adult patients. In a Phase III, double-blind, randomized, active-controlled trial, cariprazine was significantly more effective than risperidone in treating negative symptoms of schizophrenia and improving patients' functionality [2].

Aims of the Study: Data from the primary efficacy endpoint of the study, Positive and Negative Syndrome Scale (PANSS), were post hoc evaluated for the PANSS derived Liemburg factors "core negative symptoms" and "social emotive withdrawal" and for the change from baseline (CfB) of PANSS single items belonging to the Liemburg factors.

Methods: Subjects with schizophrenia and a PANSS factor score for negative symptoms (PANSS-FSNS) ≥24 with no pseudospecificity factors (e.g. positive, extrapyramidal and depressive symptoms) were randomized to cariprazine 4.5 mg/d (dose range: 3–6 mg/d) or risperidone 4 mg/d (dose range: 3–6 mg/d) for 26 weeks of double-blind treatment. The primary efficacy parameter was CfB to endpoint in PANSS-FSNS. The secondary efficacy parameter was CfB to endpoint in Personal and Social Performance Scale (PSP), which measured functional improvement. Post hoc analyses evaluated the CfB of the PANSS-derived Liemburg factors [1] and PANSS single items of N1, N3, N6, G5, G7, G13 and N2, N4, G16 characterizing the "core