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IDENTITY IMPAIRMENT IN SCHIZOPHRENIA TYPE III
(CROWN)

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Abstract

Motivation: Hebephrenic Schizophrenia is a touchstone in terms of long-term management, especially the acceptance by the patient's family of the lingering evolution and the disintegrative dimension of cognition and intellect. Objectives: We would like to present a case of Hebephrenic Schizophrenia, with onset at the age of 13, on a background of high level intellectual and social functioning. Hypothesis: The patient corresponds to type III Schizophrenia according to Crown's classification, the important characteristics are: disorganized speech and behavior, attention and cognitive deficits, the presence of an amalgam of symptoms, both positive and negative. Method: Computerized EEG, brain MRI, psychiatric interview, daily monitoring of the developments during treatment, life mapping, heteroanamnesis, psychological tests, participation in occupational therapy and psychoeducation during a prolonged hospitalization. Results: Investigation reveals organic structure abnormalities such as a leptomeningeal parasagittal left 1 cm cyst and a lipoma at the corpus callosum level. The patient showed a progression of deteriorative type of cognition and behavior, up to and loss of sphincter control, ceaseless imperative auditory hallucinations, voices dictating suicidal acts of bizarre motivations. Poor remission and treatment failure. Conclusions: Antipsychotics influenced less productive dimension of the disease, with persistence phenomenology of formal thought, language and communication disorders (deficits in logical reasoning, approximations of words, persevering), along with regression and high levels of suggestibility.

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Keywords: Hebephrenic schizophrenia, disintegrative spectrum disorders.



1. Introduction

The patient is a 20 years old girl, Delia, with actual diagnostic: disorganised schizophrenia resistant to treatment with early onset (at the age of 13 years old). Without neuroleptic indication of second line Clozapine type because of the agranulocytosis risk.

It is worth mentioning that there was taken into consideration the diagnosis of Hebephrenic Schizophrenia, given the personality and behaviour disintegration, personality and be compared to the highest level of functioning reached previously (grade 9.30 from mother's declarations at the capacity exam). The disease onset was around the age of 13 years, without significant family heredo-collateral history for serious psychic disorders, excepting a diagnosis of panic disorder of her father, for which he followed exclusive treatment with BZD.

2. Problem Statement

Private high-school graduate with very great support and help. Incapable to take the Bacalaureate exam because of thinking, feelings and behavioural disorganisation. She lives with her mother, her parents being divorced; she has a three years older sister, healthy, married, who difficultly bears the interaction with the patient. She is left alone at home for about 10 hours/day, with ambient arrangement so as there be no sharp objects or other means by which Delia could harm herself. Proportioned food is prepared for her because of compulsive eating behaviour. She would have the indication for permanent supervision, but mother refuses it. When she comes back home, she often finds the beds wet (Delia suffers of urinary incontinence of regressive model territory marking) and many ambient objects destroyed.

At present, she is therapeutically monitored for one year.

3. Research Questions

According to Babigian's studies (Babigian & Guttmacher, 1984) confirmed by Beisier in 1993 (Beiser, Erickson, Fleming & Iacono, 1993) regarding the precocity of the onset of schizophrenia in the present case, we ask why estrogen hormones could not function as protective in the "neuroleptic-like" sense, according to Pentrose's and by Haffner.

How an extent closer mother supervision would have highlighted early on the disabilities that suggested the negative symptom register and a targeted pharmacological approach on neurobiological vulnerability could have protected the progression to early dementia?

Crown's model is based on Thara and Eaton's (1996) vision, which points to polygenic influence, in this case the patient presenting a certain vulnerability under the spectrum of schizophrenia.

Thus, we aim for the pharmacological approach, because the localization of the D2 dopaminergic receptors predominant in the basal ganglia is known, which directly correlates with the negative symptomatology. Thus, we wonder what the specific antipsychotic would be, which can ameliorate both the positive and the negative symptoms and can offer a balanced action between the D1 and D2 receptors in the gabergic spectrum. The classic antipsychotics, acting on the positive symptoms, would be contraindicated in this case, given the increase in negative symptomatology, which causes irreversible neuronal damage.

We consider the patient as belonging to the Crown III classification, given the presence of the lesion source (meningioma attached to the frontal bone and the callus body agenesis), together with primary vulnerability, neurological and biochemical factors.

We ask the question of suicide risk, given the train of symptoms, the rapid relapses, the use of atypical antipsychotic medication of a multimodal type, which covered the whole range of the neurobiological mechanisms involved, increasing the suicide risk, without too much success in the therapeutic area.

According to Murray, Lopez and World Health Organization (1996), the case would entail neuro-developmental abnormalities with neuro-degenerative elements (necrosis-like neuronal aggression), whose self-destruct mechanisms result in irreversible alteration of synaptic structures.

The study raises the question of the differences in diagnosis between Schizophrenia defined by DSM V and Schizophrenia as defined in the Crown classification, this case better fitting in the second description, given the associated cerebral organology, negative symptomatology, inability to achieve remission (partial and partial), as well as the chronic deterioration.

The second issue raised by the proposed study is that of therapeutic possibilities. The former would be related to the indication or contraindication of Clozapine use due to the risk of neutropenia, and the second indication would be electro-convulsive therapy given the patient's aggressive potential (both on the patient and on others) conceptual ideological disorganization and behavioral acts.

4. Purpose of the Study

4.1. Hypofrontality

The study aims to highlight the neurobiological factors involved in the psychopharmacology of schizophrenia, at the center of symptomatology being the concept of hypofrontality (supported by neuroimages investigations - cerebral CT for highlighting the relationship of meningioma with bone structures, cerebral MRI with contrast substance that calls the body).

Cognitive dysfunctions are primarily due to hypodopaminergic frontal cortical structures, predominantly in the dorsal-medial frontal cortex, which generates the hypofrontal syndrome, significantly correlated with cognitive dysfunctions. Within this syndrome a primary dysfunction of type D1 auto receptors is noted. Activation of these auto receptors with specific dopaminergic agonists enhances both negative and positive symptoms, with vertical type control between structures with D1 receptors located at cortical level and structures D2 located at basal nuclei. The control function is performed through the GABA structures.

The second mode of neurobiochemical expression of hypofrontality, considered secondary, is a consequence of disturbance of the dopaminergic-gabaergic balance, by blocking the striatal type D2 receptors, with triggering the neurotoxic hyperactivity of the glutamate system. The first-generation antipsychotic medication corrects the effects of hyperdopaminergy (positive type symptomatology) with the risk of accentuating the negative phenomenology, by irreversible lesion alterations at the thalamic, mesolimbic and cortical levels.

4.2. Brain dysconnectivity and asymmetry

In the psychopathology of cognitive disorders in schizophrenia, particularly in the present case, the deteriorating syndrome tends to become axial (most important). Bowen, Wallace, Glynn, Nuechterlein, Lutzger and Kuehnel (1994), later Penn, Spaulding, Reed and Sullivan (1996) and Meltzer, Thompson, Lee and Ranjan (1996), take into account some cognitive indicators in assessing the prognosis of the disease, as well as the possibilities of improving the social functioning. According to Spaulding, Fleming, Reed, Sullivan, Storzbach and Lam (1999), the cognitive deficit becomes a therapeutic target, because the vertical dysconnectivity between cortical and subcortical circuits predominantly involves the prefrontal cortex, thalamic nuclei and the cerebellum. Andreasen, Paradiso, and O'Leary (1998) call this disturbance the connection of cortico-subcortical circuits, cognitive dysmetria, characterized by difficulties in selecting, processing, coordinating and responding to information.

The role of thalamus in establishing connections between cortical and subcortical floors is central to current research in schizophrenia. Thus, the main thalamic alterations would be: structural and / or metabolic at the level of the anterior nucleus, as well as of the left mid-dorsal and the diminution and decrease of the neuronal density of the left dorsothalamic nucleus. Thalamic dysfunction or injury of this relay distorts the integrative role of the previous thalamic circuits, producing the negative symptoms of schizophrenia, accompanied by major disruptions of the mnemonic function. Thus, the negative dimension of schizophrenia combines the syndrome of hypofrontality with thalamic and hippocampal dysfunction.

4.3. Neurostructural asymmetries in schizophrenia

In this case, the cognitive deficit may be correlated with the failure of coordination between the cerebral hemispheres, especially for the mental functions (working memory and anticipatory memory). This left-right asymmetry presents two models: one active (positive) and one deficient (negative), similar to two syndromes objectified in neuro-psychological studies, in which the difference is made by interpreting the relationship between language and mimicry. The present patient is confined to the deficient syndrome, because mimicry is significantly richer and more relevant than the possibilities of language expression. The fact is due to the selective alteration of the predominantly right temporo-parietal area, regarding the deteriorating syndrome (Gruzelier, 1999).

Other neurostructural asymmetries that the MRI with contrast substance highlights are: predominantly left ventriculomegaly, with reduction of the density of the left hemisphere, with the area of focal type aplasia, with the reduction of the volume of the left temporal lobe, especially in the upper and medial gyrus, with parahippocampal atrophy.

The cerebral structural deficit of the midline has aroused interest in the neurobiological studies of schizophrenia, the particularity of the present case being an anomaly of development and functioning in the body of the corpus callosum, which produces a horizontal type dysconnectivity. The fact is clinically correlated with both psychotic manifestations and cognitive deficits and with negative symptoms and with a degree of alteration of the integration of visual stimuli

The patient corresponds to type III Schizophrenia according to Crown's classification, the important characteristics are: disorganized speech and behavior, attention and cognitive deficits, the presence of an amalgam of symptoms, both positive and negative.

The actual treatment is with Leponex, mother not giving her consent in this sense, because she declares in the antecedents significant initiation neutropenia (decrease of granulocyte count to approximately 8000 / mm³ at 3500 / mm³) (Citrome et al., 2001).

As a consequence, the association of the following drugs was decided:

- Timostabilizer of Valproic Acid type, for the control of behaviour disorder manifestations (the patient presenting clastic crises, auto- and hetero-aggressiveness) (Smith et al., 2012).

- Antidepressant. The administration of Cymbalta-type SSRI (Selective serotonin reuptake inhibitors) was tried initially, the under which agitation accentuated. Subsequently, it was decided dual AD (antidepressant) of Mirtazapine-type, which ensured an optimal mood. In AD absence, the patient becomes sad, she weeps, cries out, and asserts that she does not want to live anymore. For a short period, toward the end of hospitalization, Trittico was administered, without the same potent effect over her mood (Ketter & Terence, 2010).

- As regards the AP (antipsychotics) administered, Paliperidone administration was tried initially, with a dose of 18 mg / day, without the possibility of reduction of quasi-continuous hallucinations and bizarre psychotic behaviour. Favourable response was obtained at the addition of 400 mg Amisulprid over Paliperidone, subsequently 600 mg, which justified the decision to keep a single AP in high dose, Amisulprid 1200 mg (patented by 30 mg Mirtazapine, 1000 mg Orfiril and BZD). There was also tried the association of Amisulprid (600 mg) with Quetiapine (up to 800 mg), for the sedative component, combination which accentuated the somnolence and produced dysarthria (Trifu, Nica, & Tilea, 2013).

From the analysis of family history, we note the structure of a hypersensitive child, attached to family, with hypochondriac preoccupations, in the context of chronic diseases of some close persons (grandfather and uncle).

The patient was admitted to Săpunari Psychiatry Hospital, initially in the *Acute* Section, subsequently in the *Chronic* Section, for the consolidation of therapeutic results obtained in *Acute* Section.

Amongst the dominant symptoms we noted: chronic, quasi-permanent auditory hallucinations, influencing patient's thinking and behaviour (including autolitic preoccupations, psychotically motivated and xenopathy-dictated), cries (determined exclusively by internal stimuli, *she cries out at characters invading her existence during night. She interacts with these characters even during the day*), bizarre attitude, regressed, suggestible behaviour.

Throughout her last hospitalization, given the chronic symptoms, it was decided the supplementation of investigations by brain MRI with contrast agent, highlighting a calcified meningioma with diameter below 1 cm at the left frontal level and a lipoma at the cockscomb level. A second diagnosis opinion was requested, infirming the possibility that the symptoms be dictated organically, considering the evolution of a disintegrative schizophrenia.

EEG – does not highlight graph elements

5. Research Methods

The patient was hospitalized multiple times in prolonged admissions to acute or roninous sections, being in a symbiotic relationship with the caregiver and refusing institutionalization. Cerebral imaging investigations (CT, MRI, contrast scan PET) were performed to visualize both brain fluxes and the

proximity of meningeoma with bone structures and anatomical variants of the patient's brain. Computerized EEG and sleep EEG have also been performed. The psychiatric daily progression under medication through clinical heterosexuality scales (BPRS, PANNS, GAFS, HAM-D) was followed, the patient being unable to perform psychological self-evaluation tests due to cognitive disorientation (even pro-active). She was continuously supervised, trying to play ludic type (her mental age being that of a child up to 5 years old). Mother refused treatment with Clozapine as well as ECT, although their risks are minimal. Psychotherapy has been done for a long time with the mother of the patient, with the mapping of life and centering on family relationships and the pursuit of these dynamics through the perspective of cumulative trauma.

5.1. Semiologic description

5.1.1. First rank symptoms

- thinking sounding, next to insertion, extraction, influence, transmission
- quarrelling voices and commenting voices
- somatic passivity feelings
- delusional perceptions
- „done” actions, feelings

5.1.2. Second rank symptoms

- delirium intuition
- other perception disorders from tactile area
- psychotic anxiety, with which the patient fights and which is related more by the father
- mood changes (more obvious after the first 7 days of treatment, which were probably inhibited

because of hallucinatory phenomena)

Around the age of 15 years the existential drive decreased and negative phenomenology of apathy, avolition and inattention type predominated.

During the last three years, one can notice a progressive development of the following symptoms: marked decline of social, academic and personal functioning; accentuation of negative symptoms; difficult, precarious interpersonal relation, isolation, withdrawal; gradual, insidious loss of drive and ambition (Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, 2000)

Symptoms of action area: social and intellectual withdrawal (during the last two years of high-school, she did not attend high-school classes, she was schooled at domicile)

Perception, representation and thinking distortion symptoms: audible thoughts, withdrawal, influence; somatic passivity experience; delusional perceptions; „done” feelings, actions; kinesthetic disorders = body scheme damage sensations; non-usual perceptual sensations, of dwelling with the environment and sensorial shock; the absence of the contact with the world through natural senses; subtle perception distortions masking delusional ideas

5.2. Affective symptoms/thymus area perturbations:

- affective flattening, as regards facial expression and preservation of visual contact, which is made with difficulty or with blank-type vision, apathetic (Rotter, 1954)

- there are no voice inflexions, communication is monotonous, of non-prosodic type, with affectively non-responsive movement and gestures
- has dominant moments of inadequate affect, ambivalence or affective inversion, without external reasoning in relation to important persons of her existence (mother, father and sister, in relation to whom she cries out, bites, hits them, breaks the surrounding objects and destroys goods)
- alogia elements: poor speech, short, concrete, non-elaborated, ambiguous or general answers with few pieces of information, increased latency, fading, mental blockage during exposure of her philosophy preoccupations, in relation to which she has adhesiveness.
- volition, apathy, physical energy (Sarkar, Mezey, Cohen, Singh, & Olumoroti, 2005)
- anhedonia, asociality: decrease of recreational interests and activities (inability to socialize), decrease of ability to feel intimacy, non-interest for interpersonal relationships, lack of any attachment person, social inattention, subjective sensation to be “aerial”, sensation of psychic mist aroused in the interlocutor (Colasanti, Natoli, Moliterno, Rossattini, De Gaspari, & Mauri, 2008).

Other schizophrenia symptoms – from the general psychopathology PANSS (Positive and Negative Syndrome Scale): somatic preoccupations, satellite anxiety, guilt in relation with the Universe and especially in relation with mother with whom she lived by fusion and for whose emotions she represented a receptacle (mother suffering because her husband left her and because her brother died), mannerisms, apatho-abulic type depression (that dictated also the decision to supplement the treatment with AD, without too good response), difficult cooperation (whole meetings where she expressed with difficulty and after insistence), unusual content of thinking, time and space disorientation, inattention during ergotherapy or psychodynamic therapy meetings, which had as purpose the increase of Ego cohesion, the absence of disease consciousness, autism preoccupations, lack of social activities because of mistrust and fear.

6. Findings

The diagnosis of schizophrenia type III in the Crown's classification is discussed, given the frontal location of the meningioma attached to the skull, which potentiates the frontal type pathology. We can say that this frizzes the morriatic lobar syndrome through sexual disinhibition, unaffordable adhesion and familiarity, coprophilia, disorganization of behavioral acts that goes up to regression (the patient is pampers).

Diagnosis in this category requires therapy to take into account the factors of cerebral organism that negatively affect prognosis. Corollary, the patient has minimal awareness of the disease, which amplifies abdominal apathy, but has autolitis decompensation at risk of suicide.

6.1. The results of combined pharmacological approach and psychodynamic approach with a view to increase Ego unity:

Medication acted on the productive phenomena of delusional hallucinatory type, without weakening the attitude of the type “immediate, direct and total certitude: I know it!”. After the first two weeks, the

phenomena moved from the perceptual plane to that of representations, the patient focusing on the assertion of pseudo-hallucination type phenomena, thinking sounding, phenomenology in the tactile register. This was possible (in fact, the verbalization of presence of these elements) only after the Amisulpride in high dose acted so that to negativize the phenomenology in perceptual plane and the patient be able to express that from the representations plane.

One can identify a moment when the affective symptoms appear at the forefront, initially emotional lability, which subsequently reaches the intensity of dysphoria, as a consequence of triggering of a minimum insight. The problems related to Delia remain in the imaginative plane, where she plays with psychotic dimension, without having criticism on the diagnosis.

The purpose of psychodynamic approach of the patient on pharmacology background is to recover the Ego unity and internal cohesiveness, which cannot be attacked by the voices. With the reunification of the Ego and disappearance of psychotic phenomenology, the intermediary of imaginative will be no longer necessary as transitional area on which one works within the therapy. Prior to the onset of disorganised Schizophrenia, Delia was inclined to abstractions and abstractisation, trying further to use her creativity to understand psychotic striking her existence and to integrate this dimension into her personality.

6.2. Psychoanalytic training

The presence of the psychologist with psychoanalytic training twice a week in the domicile life acted on the following Ego areas:

- diminished the withdrawal, irritability, aversion pattern (Reagu, Jones, Kumari, & Taylor, 2013)
- significantly reduced the personal care problems
- diminished her subjective feeling of perplexity, the lack of concentration and alienation feeling
- reduced the feeling that the patient's perceptions appear dissociated one to the others, which needs ritual behaviours in antecedents (of poor prognosis when they appear in schizophrenia) of checks and validity confirmations type
- acted on the depersonalization, somatisation and fright sensations, on the body sensations that were felt as unfamiliar. Delia asserted how the body borders, as well as the position, appear distorted and instable.
- the patient responded to these destabilising experiences by native adaptation patterns such as, rational explanations, which finally became implausible or frankly bizarre (Haney, Maynard, Houseworth, Scherwitz, William, & Barefoot, 1996)

Areas on which we expect to act further the ergotherapy and the psychodynamic approach of the symptoms, under the pharmacological background:

- shyness, introversion, deficient relation-making
- inexplicable deficiencies in certain cognitive areas (even in other cognitive areas, Delia is much over the level of an average intelligence)

(Mesholam-Gately, Giuliano, Goff, Faraone, & Seidman, 2009)

- increased vulnerability to stress

- oppositionist hostility and confuse naivety attitude (Mauri, Rovera, Paletta, De Gaspari, Maffini, & Altamura, 2011)

- to put unitarily the qualities that seem deficiently integrated at present

- “emptiness” sensation, forgetting to thank, to smile, to answer to questions

- she does not seem interested to discuss on her situation

- on the loss of Ego borders (on the clear idea where the body, the mind and their influence end)

- the feeling of being fused with the external objects or to be completely disintegrated

- bizarre feelings of exaltation, omnipotence, loneliness in the universe, ecstatic religious states, the terrifying apprehension of being bodily disintegrated, anxiety related to the imminent destruction of the universe, emotional sensitivity, that of being easily hurt by the rejecting behaviour of the other (First, Spitzer, Gibbon, & Williams, 1997).

7. Conclusion

The study imposes biological-genetic vulnerability factors for schizophrenia, without neglecting the risk of depression and suicide. Of these, we mention: primary factors - imbalances of the dopamine - serotonin equilibrium, alterations of the presynaptic enzyme synthesis systems, alterations in the number and sensitivity of the post-synaptic receptors and secondary factors - following the prolonged blockade of the classical D2 postsynaptic nigrostriatal dopamine receptors, highlighted by early extrapyramidal effects, akathisia syndrome - dysphoria - suicide (Kane & Marder, 1993), hyperprolactinemia - premenstrual dysphoric syndrome encountered in the patient, with high rate of violent auto or hetero-aggressive behavior during this period, negative phenomenology.

The neurobiological and psychopharmacological correlations of the syndromes encountered in the schizophrenia of the present case involve:

- distortion of reality (positive symptom, with overstimulation of the left medial temporal lobe and dopaminergic hyperactivity),

- disorganization (negative symptom, with neurobiological lesional substrate in thalamus, left temporal lobe, anterior right cingular cortex and biochemical substrate dopaminergic hypoactivity and dopamine-serotonin balance imbalance),

- psychomotor impoverishment (negative symptom due to bilateral injury of the caudate nucleus, with dopaminergic - serotonergic imbalance),

- psychomotor excitation (a mixed symptom, with possible localization in the frontal cortex, noradrenergic, dopaminergic and serotonergic hyperactivation),

- depression (negative symptom, with mesolimbic localization and serotonergic and noradrenergic hypoactivity).

Thus, in this case, the presence of the brain lesion factors (neurodevelopmental anomalies), with the objectification of the lesion by brain neuroimaging techniques, supports the cognitive disability and the onset characterized by social integration deficiencies, which have as a biochemical correspondent the dopaminergic hypoactivity, imbalances of the dopamine - serotonin equilibrium and involvement of GABA / glutamate systems.

In this case, genetic factors are less important compared to neurodevelopmental abnormalities, the patient does not necessarily have schizotypal premorbid features, but in a careful anamnesis, a premorbid period was discovered characterized by cognitive dysfunctions and adaptive disabilities, this prodromal syndrome being followed by cognitive symptoms. After that, the disease phase itself covered all three dimensions of schizophrenia: positive, negative and disorganization. Not to be neglected are neurodegenerative disorders (genetically programmed apoptosis and prefrontal excitotoxicity), which, together with the iatrogenic risk generated by D2 blockade, led to neuronal death and synaptic lesions, to accentuate negative and cognitive symptoms, the end being therapeutic resistance.

Throughout this entire monitoring year, the patient participated to activities of ergotherapy and psychological modalities of approach for the reduction of disintegration at the personality and cognition level were tried (including cognitive recovery tests) (Dindelegan, 2006).

The evolution was slowly favourable, mainly as regards the abatement of imperative, chronic hallucinations and of bizarre things. However, the destructuring and disintegration persist, such as not obtaining the recovery of sphincter control (Dindelegan, 2010).

The treatment is further recommended with the same antipsychotic dose, on background of antidepressant and timostabilizer, with supervision in the family environment and psychodynamic containment techniques and cognitive recovery exercises.

As subsequent possible approach strategies: ECT or repetitive transcranial magnetic stimulation. Comes back for hospitalization, as the case may be

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