



Complex Folie a Deux Related to Multiple Biopsychosocial Factors for an Elderly Patient and his Wife

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Abstract

The elderly frequently present to clinic with a complicated biopsychosocial picture requiring careful attention to each major contributing component of the triad. A relatively infrequent case of folie a deux in an elderly couple is presented. The unusual aspect is that the psychiatric phenomena were precipitated by metabolic factors initiated by diabetes mellitus. The progressing diabetes mellitus contributed to severe diabetic retinopathy with legal blindness, end-stage renal disease, advanced peripheral neuropathy and vascular dementia. These medical complications resulted in severe paranoid ideations in addition to visual, auditory and tactile hallucinations that had been ongoing for an indeterminate period of time prior to the patient arriving in our mental health clinic. The resultant folie a deux had isolated the couple from family and society leaving the patient's wife to coexist in her husband's world of believing that the hospital had placed a computer chip in his head which rendered him an agent of world saboteurs that shocked him and sent insects and snakes to bite him when he did not obey their commands. Despite the wife's shared the delusional world of her husband's severe psychosis, she was able to faithfully follow the treatment plan. This case illustrates the effectiveness of aggressive psychiatric medication management coupled with proactive social support and ongoing couple education.

Introduction

"Folie a deux" (French for "a madness shared by two") is an interesting and uncommon psychiatric syndrome in which two persons share the same delusional beliefs and hallucinations [1]. First described by French psychiatrists Charles Lasègue and Jean-Pierre Falret in 1877, it was denominated in the medical literature as the Lasègue-Falret Syndrome [1,2]. Although the original name "folie à deux" is the most commonly used descriptor in modern day research literature, DSM-IV classified the syndrome as a shared psychotic disorder [3]. DSM-V removed the shared psychotic disorder as a separate disease entity and included it in the section of schizophrenia spectrum and other psychotic disorders. This is a broadly inclusive category including, but not limited to Schizophreniform Disorder, Schizophrenia, Schizoaffective Disorder, Substance/Medication-Induced Psychotic Disorder, and Psychotic Disorder Due to Another Medical Condition and Catatonia [4]. ICD-10 continues to use the original name folie a deux (2018 ICD-10 [5] and characterizes folie a deux as a clinical presentation in which two people that have an unusually close relationship share the same delusion. In this relationship, there is temporal and/or contextual evidence supporting the dynamics of the dyad as having an active partner (primary) that induces the delusions of the passive or secondary partner [5]. Notably, multiple persons may share the same delusional beliefs and hallucinations which modifies the denomination depending upon the number of persons involved: three persons "folie a trois"; four persons "folie à quatre"; and, multiple persons "folie à plusieurs" ("madness of many").

We present a case of folie a deux with the majority of all the primary partner's delusional beliefs and hallucinations relating to ongoing medical and psychiatric problems. This case covered a period of time from March 2016 until January 2018. It illustrates the complex treatment plan needed to stabilize a patient and his wife with folie a deux. The treatment team's principal aim was to provide the maximum quality of life for the patient (primary partner) and his wife (secondary partner). In this case, the primary partner has end-stage renal disease requiring total care from his wife. She refuses to accept any help at home from the hospital social work staff and she is also afraid to admit her husband to a hospital due the folie a deux paranoid ideations of the hospital

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Table 1: Progression of veteran’s psychotic symptoms with medications.

Week	Psychotic Symptoms	Psychiatric Medications
1. wearing large bacterial mask	Visual hallucinations: There are snakes everywhere. Visual hallucinations: I see devils on the road and dinosaurs and snakes when we are driving to the hospital. Tactile hallucination: Wires are on my arms, legs and chest that shock me all day. Paranoia: The hospital surgeons planted a microchip in my head Thought control: a group of global saboteurs are controlling me through the microchip. Bazaar ideations/paranoia visual hallucination: His tormentors have AK-47s pointed at his head and they will shoot him if he says or does something they do not want; Paranoia: Global saboteurs are going to shoot me and end the world. Bazaar ideations: His eyes have been replaced with eyes from his tormentors that control what he sees.	Start quetiapine 100 mg twice a day; increase trazodone to 200 mg qhs; continue dialysis 3 times a week.
2. wearing large bacterial mask	Paranoia/tactile hallucination: when I make a mistake they shock me through wires and ribbons. Tactile hallucination: One of my legs is more swollen than the other (he pulls up his pants leg for examination). Paranoia/tactile hallucination: they still give me electric shocks in my legs when I say something they don't like.	Increase quetiapine: 100 mg qam and 200 mg qhs for psychosis and mood stabilization); continue trazodone 200 mg daily at bedtime; continue dialysis 3 times a week.
3. wearing large bacterial mask	Visual hallucinations/bizarre ideation: I have to get rid of them (controllers) as they fill up my room with rocks which have names on them. Delusion: They ask me to name the rocks in my bed, but I can't see them with my eyes. Tactile hallucination: they (controllers) are sticking needles into my feet, legs and hands. Visual hallucination: These men (tormentors) come out of my body (lower legs) and get big (expand). They look like babies and they are pulled off my body. Then a large scoop comes and scoops them up and puts them on an escalator.	Add: haloperidol 2 mg twice a day for visual hallucinations, paranoia and decreased sedation; Increase quetiapine to 200 mg every morning and 400 mg daily at bedtime for psychosis; dialysis 3 times a week.
4	Visual hallucination: People with leprosy are coming into my house to use the bathrooms. Visual hallucination: I can see your (examiner's) face changing in shape while I am looking at you. Visual hallucination: People with AK-47s sometimes have pop guns with corks coming out on strings. Visual hallucination: I see dialysis bags in containers in the (clinic) room. Visual hallucination: I see square boxes in my eye when I use a mirror. Visual hallucination: I see angels singing in the sky outside my house and in my room. Visual hallucination: dogs are hanging over the bathtub facets. The get sucked down the drain and then come out again and are upset.	change quetiapine to 600mg qhs for psychosis and mood stabilization; increase haloperidol 4 mg bid for increased antipsychotic effect without additional sedation; consult to dermal wound for diabetic ulcers; dialysis 3 times a week.
5. No mask	Visual hallucination: I see heads floating around me without any bodies and they are covered with hoods. Visual hallucination: All the heads have knives and swords. Paranoid tactile hallucination: They (controllers) are shocking me with electric wires coming from their heads. Paranoid ego-syntonic delusion: the controllers are using this computer (chip) to try to make me believe what they want me to believe, but I won't.	Continue quetiapine 600 mg at night; increase haloperidol to 7.5 mg twice a day; continue dermal wound care; dialysis 3 times a week.
6. no mask	Ego-syntonic delusion: The controllers are using this computer chip (pointing to his posterior head) to try to make me believe what they want to believe; but I won't. Delusion: I can't hear my wife talk. Paranoid Delusion: The chip is still in my head to experiment.	Continue quetiapine 600 mg at night; continue haloperidol to 7.5 mg twice a day; start bupropion 100 mg SA; dialysis 3 times a week.
7	Paranoid delusion: The computer chip is still in my head. Paranoid delusion: Why are my eyes so bad? They (controllers) are still controlling my eyes. Paranoid tactile delusion: they (controllers) sting my legs to keep me from going asleep at night. Paranoid delusion: These persons get on top of me and I can't push them off because they are not there.	Stop quetiapine 600 mg at night; start olanzapine 10 mg bid for psychosis; continue haloperidol to 7.5 mg twice a day; stop bupropion 100 mg SA; start sertraline 25 mg in the morning for 10 days and then increase to 50 mg for anxiety and depression: dialysis 3 times a week.
8	Ego-syntonic visual/auditory hallucinations: There are always people around me. They talk among themselves and smile, but they never talk to me. They don't bother me. They don't worry me. Ego-syntonic delusion: I have little boxes in my eyes with screens that allow me to see. The doctors cannot see the little boxes when they look in the eyes. Nobody can see these little boxes except me. Ego-syntonic delusion: The computer chip is helping me see and track everybody around me. Ego-syntonic delusion: The computer chip is still in my head but it is no longer in control, I am in control. Paranoid tactile delusion: They (controllers) sometimes shock my feet and lower legs at different times during the day even if I have socks and shoes on.	Continue olanzapine 10 mg bid for psychosis; continue haloperidol to 7.5 mg twice a day; continue sertraline 50 mg for anxiety and depression: dialysis 3 times a week.

doctors experimenting on her husband. In this case, we describe the interventions needed to reduce the stress for the patient and his wife in addition to minimizing the psychotic and depressive symptoms of the primary partner.

Case Presentation

Visit 1 2016

A 70-year-old, married male returned to the mental health clinic with a history of noncombat PTSD and vascular dementia accompanied by the recent onset of visual hallucinations. The patient had been seen in the mental health clinic by a multitude of providers for several decades. During this time, he would not return to his appointments for several years at a time. His last follow up appointment prior to entering our clinic was four months earlier by another provider who had noted behavioral disturbances and visual hallucinations of snakes. At that time, both the patient and his wife were observed wearing large bacterial masks which obscured their faces except for their eyes. Clinic notes indicated that the patient's most recent psychiatrist had never seen the full faces of either the patient or his wife. The patient was also wearing dark glasses due to his diabetic retinopathy.

Within minutes of entering the office, the patient began dramatically and angrily describing his reality, that his mind had been captured and controlled by a global network of human saboteurs who were controlling him through a computer chip placed in his head by the hospital staff during a past medical/surgical admission. He said "they have taken control of my eyes and are shocking me through wires attached to the legs, chest, and arms". He stated, "I am at war all day and they will kill me with an AK 47 (assault rifle) if I don't do what they want, but I am not afraid. I will take their best shot" (Table 1).

The patient's wife reiterated that her husband's hospital medical/surgical staff had placed a microchip in his head. She pointed to a spot on the patient's right occipital skull where there was a small square area with less hair; however, there were no scars or signs of surgery. The patient's wife was interviewed separately from the patient as she was reluctant to speak about him in his presence due to her fear of worsening his symptoms. She spoke in a very low voice even though the patient was in another room. She described all the hallucinations the patient was experiencing and repeated his description of his paranoid delusions of persons using him to help destabilize the world. She did not doubt that all of his perceptions were real (Table 2).

The patient had a very complicated medical history with multiple ongoing problems: diabetes mellitus type II; glomerular nephritis; vascular dementia; history of transient ischemic attacks; anemia; end-stage renal disease; diabetic macular degeneration; history of thrombectomy of arteriovenous fistulas; hypertension; hyperlipidemia; status post kidney transplantation (renal allograft: cadaveric kidney transplant recipient in 1992); migraine headaches; erectile dysfunction; obstructive sleep apnea; history of pulmonary embolism; history of clear cell kidney carcinoma; chronic posttraumatic stress disorder; history of congestive heart failure; senile cataracts; legal blindness; peripheral neuropathy; obstructive sleep apnea; thyroid nodule; secondary hyperparathyroidism; obesity; and prostate hypertrophy. Laboratory values were predominantly stable aside from those related to his end-stage renal disease: glucose 108; BUN 55.0 (elevated); creatinine 10.5 (elevated); eGFR 6 (severely low); sodium 135 (low); potassium 4.7; chloride 94 (low); CO₂ 30.3;

anion gap 11.0; calcium 8.7; magnesium 2.3; protein 8.8 (elevated); albumin 3.6; alkaline phosphatase 293 (elevated); ALT 12; AST 18; total bilirubin 0.8; concentrated bilirubin 0.1.

The head CT without contrast showed parenchymal involutational changes more prominent in the frontal lobes, remote left periventricular infarct extending to the Sylvian Fissure, ex vacuo dilatation of the left lateral ventricle and dense bilateral arteriosclerotic vascular disease of the internal carotid arteries. Noninvasive carotid artery imaging showed mild atherosclerotic disease in the bilateral internal carotid arteries with approximately 40 to 69 percent stenosis in the left side without significant stenosis on the right side. A past tumor PET scan (2014) revealed polycystic kidneys with end-stage renal disease and a rejected renal transplant in the right lower quadrant with clinically established renal cell carcinoma.

The patient had been scheduled for a neurocognitive workup in 2006 as he was having problems with depression, difficulties with concentration, focus, attentiveness, memory and word-finding. These problems were reported to have been ongoing for 2-3 years. The results revealed that the patient's memory scores were in the 4th percentile, fluency was in the 8th percentile indicating borderline functioning in this area and executive function was in the mildly impaired range. The Clinical Dementia Scale revealed mild dementia. The presence of visual hallucinations and depression were noted to have been present for approximately one year. It was hypothesized that the cognitive decline was due to multiple causes including toxicity from his end-stage renal disease, deteriorating vision and other comorbid medical problems. The patient's psychiatric history included non-combat related PTSD with flashbacks, irritability, anxiety, paranoia, hyperstartle response, sexual dysfunction, social anxiety disorder and depression. He denied suicidal and homicidal ideations, plan or intent. His two principal complaints were depression and sleeping difficulties which had been treated for approximately a decade. In 1998 he was using propranolol 20 mg a day for social phobia and anxiety for when he spoke in front of a large audience. Past psychiatric medications included paroxetine, venlafaxine and trazodone.

The patient's social history revealed that after being discharged from the Army, he studied engineering for three years and eventually worked at a tire factory for over 20 years. He was having renal failure and had to be started on dialysis. This treatment caused him to end his employment. He was placed on a kidney transplant wait list and he started studying to become a minister. His kidney transplant surgery had poor results and he had to continue on dialysis. He was dynamically involved in his own church and he had an active community life. As early as 1998, the patient began experiencing progressive problems with public speaking anxiety when delivering his sermons. By 2005 the patient's diabetic retinopathy had worsened to the point where he could no longer write or read his sermons. This was the prodrome of his decline in physical and cognitive capabilities, leading him to retire from his ministry in 2006 due to his medical limitations. The patient's family history was relatively noncontributory other than one son developed kidney failure in the 1990s. The patient denied a history of drugs, tobacco and alcohol use. He drank one to two cups of coffee a day.

The mental status examination revealed a well-dressed gentleman, sitting in his wheelchair with good grooming and hygiene, wearing a large bacterial mask and dark glasses. He was initially exceedingly guarded and did not want to say anything about what he perceived during his days and nights. His wife looked away at the far wall of

Table 2: Wife’s shared folie a deux delusions.

Week	Shared Delusions
1. Wearing large bacterial face mask	Paranoia: Wearing large bacterial face mask to avoid infection from the mental health center staff. Paranoia: The hospital surgical/medical staffs placed a microchip (right occipital area) in his head. Paranoia: Fear that talking about her husband’s symptoms would make his suffering worse. Visual hallucination: Can you see where they placed it (pointing to her husband's right occipital skull area)?
2. Wearing large bacterial face mask	Paranoia: the hospital put a computer into his head; they are experimenting on him using the computer chip to control and torture him. Paranoia: my husband is being shocked by invisible wires that are making his lower legs swell. Paranoia: The microchip in my husband’s head is making his symptoms worse. Paranoia: The persons in his dialysis unit are medically corrupt because they cause him to change during dialysis and after dialysis are completed. Delusion: I believe that his paranoid ideations and visual hallucinations are real. Ego-syntonic delusion: His thinking is really good until he has to fight them (his controllers) to protect himself.
3. Wearing large bacterial face mask	Delusion: He’s no better; he is still seeing snakes and ants. Delusion: Why have you changed him? Delusion: He has a computer in his brain that someone at the hospital put into his head. Delusion: I think he is being experimented on. Delusion: He is fighting in the car when he is getting electric shocks to his legs from the controllers. Delusion: He is getting bits from the snakes and ants and he stamps at them with his cane. Visual hallucination (?): The ants are filling his CPAP so he is not using it.
4. No mask	Delusion: He is not any better. Delusion: He is fighting in the car when he is getting electric shocks to his legs from the controllers.
5. No mask	Delusion: wife believes that her husband is really experiencing his tactile, visual and auditory hallucinations which she believes are from the same computer chip implanted by the hospital. Delusion: The saboteurs are shocking my husband’s legs with wires and ribbons. Delusion: The computer chip was implanted by the hospital I will never allow him to be admitted to the hospital as you are the ones who made him worse by putting the computer chip in his head.
6	Delusion: He is still seeing things. Delusion: He is dying.
7	Paranoid delusion: Quetiapine is causing my husband to sleepwalk and go outside the house into the neighborhood. Paranoid delusion: The controllers are still able to influence the world by acting through the computer chip. Delusion: he sleeps all the time.
8	Paranoid delusion: The controllers are still able to influence the world by acting through the computer chip

the examining room when he started talking about his paranoid delusions and hallucinations. The patient spoke in a loud and angry voice in a logical and linear manner as he described his “controllers”. He demonstrated mild psychomotor agitation and had good eye contact as gauged by the direction of his dark glasses. There were no extrapyramidal signs. His affect was angry and dysthymic with lability. His thought processes were extremely goal-directed within his severely paranoid frame of reference with bizarre hallucinations. His thought content was without any suicidal or homicidal ideations, plan or intent. He denied futuristic thoughts as he believed that “the global controllers will shot me if I disobey their orders”. His insight and judgment were poor. His impulse control was intact. He was oriented to person, situation and place. Education was initiated regarding the relationship of the patient’s disease entities to his paranoid ideations and his hallucinosis. Pharmacologic treatment included increasing the trazodone to 200 mg in the evening for insomnia and starting quetiapine 100 mg twice a day for paranoia and hallucinations. At this time, the patient was receiving dialysis three times a week at a clinic near the patient’s home as the central hospital with the psychiatry department did not have an available bed in their renal/dialysis department.

Visit 2 2016

The couple arrived at their second clinic visit wearing their large bacterial masks. The patient’s wife spoke first and again blamed the hospital for her husband’s psychosis stating that the hospital was experimenting on him. She claimed that the hospital put a computer chip onto the back of his head under the skin. She voiced many paranoid ideations about the hospital and its treatment teams seeing her husband (Table 2). She stated that the “those persons (controllers, saboteurs) shocking him with invisible wires are damaging one of my husband’s legs worse than the other leg”. Physical examination

showed no differences between legs, nor any swelling or signs of burns or punctures. She complained about her husband’s agitation and paranoid ideations when she was driving him to the hospital and to other daily destinations (Table 2). She could see no response to the medications initiated at the first visit.

The patient exhibited continuing paranoid ideations, visual and tactile hallucinations similar to those demonstrated during the first mental health clinic visit. However, he demonstrated less anger and fear. Despite statements to the contrary, both partners appeared to have noticed positive treatment results. The patient’s wife stated that the increase in trazodone increased the patient’s sleep to 3 hr to 4 hr. Also, the quetiapine (100 mg twice a day) appeared to have reduced the patient’s psychotic symptoms including incremental improvements in his paranoia, visual hallucinations, bizarre ideations and mood (Table 1). The patient continued to say “I am at war all day”. He did he mention ‘the chip in my head’ or the “AK-47” pointed at his head. He continued to experience the “shocks on my legs from the wires and ribbons” from his controllers. Treatment included ongoing couple education with an increase in quetiapine to 100 mg in the morning and 200 mg at night for psychosis and mood stabilization. Trazodone remained at 200 mg daily at bedtime.

Visit 3 2016

On the third clinic visit, the patient’s wife spoke first, communicating multiple complaints about the culpability of the hospital for the patient’s psychotic symptoms and also about the lack of improvement of his psychotic symptoms (Table 2). She stated that the patient was not using his CPAP because “he sees it filled with ants and insects”. To show the staff where the patient had been “bitten by snakes and ants” she pointed to two microscopic red spots on one of the patient’s hands. These appeared to be healing IV fistula access sites. There were no observable signs of multiple “snake and ant bits”

on his legs or arms. In general, the patient's wife continued to believe all the patient's symptoms were reality and she continued to doubt her husband's interdisciplinary team's trustworthiness.

On examination, the patient was quiet, relatively relaxed and without psychomotor agitation. His visual hallucinations were less threatening to him (Table 1), with fewer bizarre hallucinations compared to his prior visit. His tactile complaints remained principally localized to areas affected by his diabetic neuropathy. The increase in quetiapine to 100 mg in the morning and 200 mg at night appeared to have reduced psychosis, agitation and paranoia. Similarly, the patient self-reported that the increased dose of trazodone to 200 mg had eliminated his insomnia. The patient's wife disagreed, although she slept in a different room. His hallucinations of snakes and ants biting him were replaced by visual hallucinations of rocks being put in his bed. His ongoing, but muted psychosis, was addressed with the addition of haloperidol 2 mg twice a day for visual hallucinations, paranoia and to reduce the sedation secondary to the additional increase of quetiapine to 200 mg every morning and 400 mg daily at bedtime for psychosis (Table 1).

Veteran's wife's visit to hospital director's office 2016

Six days following the couple's third mental health visit, the patient's wife went directly to the Hospital Director's office. She voiced her mistrust of the hospital staff and asked that the hospital stop her husband's symptoms by "taking the computer chip out that you put in when you were experimenting on him". The Hospital Director, who had seen one or two previous cases of folie a deux when she had a clinical position earlier in her career, understood the situation and took the couple to the Emergency Department (ED) to have the patient admitted. However, the couple refused and left the ED before the patient had been thoroughly evaluated.

As noted earlier, due to a shortage of hospital dialysis beds, the patient had been receiving his weekly dialysis treatments at a private dialysis center relatively close to the couple's home. When a hospital dialysis bed became available, the hospital mandated that the patient receive his thrice weekly dialysis treatments at the hospital. The psychiatry team strongly advocated for the patient to continue to receive his dialysis at the local clinic as the patient's wife had expressed difficulty in transporting her husband anywhere more distant from their home due to the severity of his paranoia and hallucinosis while in the automobile. She feared that he may try to take control of the automobile or jump out while she was driving. The team petitioned the hospital directorship which agreed to continue to finance his care at the local dialysis clinic near the couple's house. No changes were made in the treatment plan. The couple was extremely grateful and this improved treatment team-patient rapport. Consequently, the couple stopped wearing their antiviral masks to the mental health clinic.

Visit 4 2016

On arrival for the fourth clinic visit, the patient appeared less paranoid and less angry; however, his hallucinations were less severe with ego-syntonic content (Table 1). The AK 47 assault rifles in the patient's visual hallucinations became "pop guns with corks coming out on strings". Moreover, he had very ego-syntonic hallucinations associated with a world different from that of his tormentors in which there were "angels singing in the sky and in my room". He also reported hallucinations "of dogs hanging over the bathtub facets. They get sucked down the drain and then come out again and are wet and upset". The patient's wife continued to voice her routine

paranoid ideations (Table 2).

During the interview, the patient stated that he needed antibiotics as he had an open diabetic ulcer on his upper left arm. When examined, the diabetic ulcer was covered by a large band aide that his wife had applied. It was about 1.5 cm. in diameter and located on the left medial bicep. To continue to reduce the paranoia and hallucinations, the quetiapine was changed to 600 mg at night and the haloperidol was increased to 4 mg twice a day. A consult was placed to the dermal wound team for the patient's diabetic ulcer.

Visit 5 2016

On his fifth clinic visit, the patient was incrementally less paranoid and less tormented by hallucination symptoms. He did not mention any psychotic symptoms until his wife reminded him of what he had been describing to her during the previous weeks. The patient did present some new visual hallucinations. The paranoid visual hallucinations had less menacing tormentors, consisting of floating hooded heads without any bodies that were carrying knives and swords (Table 1). It is notable that the weaponry was less lethal (knives and swords) compared to the original hallucinations of persons holding AK 47s which were pointed at his head. Surprisingly, the patient remarked that he was able to refuse to obey the thought insertions from the saboteurs. He also expressed the belief that he could disagree with the demands of his controllers without being shot by the AK-47 or stabbed with the knives and swords if he refused to comply. Both the patient and his wife still believed that the hospital had placed a computer chip in the patient's head.

The patient's wife remained angry as she continued to persevere on her delusion that the hospital had planted the computer chip in her husband's head (Table 2). She complained that this perceived action had resulted in months of agitation, paranoia, visual hallucinations and tactile hallucinations that had made her life so difficult. She repeated that she would never allow her husband to be admitted to the medical or psychiatric hospital services. Notwithstanding these paranoid delusions, the reduction in agitation, paranoia, visual and tactile hallucinations appeared to have significantly reduced the daily stress for both the patient and his wife. The treatment plan included continuing dermal wound care and quetiapine 600 mg at night with the haloperidol increased to 7.5 mg twice a day improved psychosis and hallucinosis resolution.

Visit 6 2017

The de-escalation of psychotic symptoms continued to be apparent at this visit. The patient appeared markedly less agitated as he sat calmly in his wheelchair. The patient's new complaints were feelings of depression and the belief that he was unable to speak with his wife. He reported that he felt "yucky and bad" and that he had very poor energy. His main goal was to "be able to hear my wife talk". He denied any ongoing psychotic symptoms and bizarre ideations, stating, "They (visual and tactile hallucinations) are gone". Significantly, the patient no longer believed that controller saboteurs were managing his world and threatening humanity by means of a microchip implanted in his head by the hospital. However, he still resolutely believed that the computer chip was implanted in his head.

We asked the patient's wife, who was sitting behind the patient, to speak to him so that we could observe the phenomenon of him not hearing her. She spoke with a low voice, so we moved her to sit directly in front of the patient with about 2 feet between their respective heads. Again we asked them to converse. The patient's wife spoke very softly

again and the patient repeated "I can't hear her". When we asked the patient's wife to speak more loudly, the patient was very happy that he could hear her talk. This phenomenon appeared to be related to his wife's habit of speaking softly as she related during the first clinic visit in order to not "make him more upset". She had assumed that her voice was agitating her husband. He experienced her relative silence as having his hearing blocked by the controllers (Table 1).

The patient's wife noted that "he sleeps all the time". She stated that her husband's health was declining significantly as he was "eating and drinking less and sleeping more. He needs help with everything" (IADLs and ADLs), claiming that she was aware that her husband is slowly dying. Also, she believed that he was still having visual hallucinations (Table 2). The patient denied this.

The visit was significant for the continuing reduction of his paranoia, visual hallucinations and tactile hallucinations. This appeared to be the direct result of the gradual titration of his antipsychotics and the effort of his wife to have him follow the treatment plan. Quetiapine 600 mg at night and haloperidol to 7.5 mg twice a day were continued. Pharmacological treatment was directed towards the patient's depression with bupropion 100 mg SA started in the morning (Table 1). Dermal wound care was discontinued as the upper left arm diabetic ulcer had healed.

Visit 7 2017

During this visit the patient appeared more serene than he has been in previous clinic visits. His delusions were minimal compared to those described during the past 6 visits. The principal complaint was "I'm not able to sleep, can you give something to help me sleep?" While the bupropion 100 mg SA seemed to improve his mood, it appeared to have worsened residual anxiety and may have led to his sleep walking [6]. The patient's wife reported that the patient had been wandering from the house at night. She stated that the police found him outside on the street one night and they brought him back to their house. The patient's ego dystonic delusions regarding the computer chip, the controllers manipulating his eyes and stinging his legs in addition to human like- persons in his bed at night persisted (Table 1). It is significant that his most recent visual hallucinations included only entities with human characteristics that were annoying, but not inflicting pain on him or threatening him with weapons.

The patient's insight improved with the reduction of his psychosis. He asked "Why are my eyes so bad?" When the psychiatry team asked for his opinion about this question he replied "because of my sugar (blood glucose level)". For the first time, the patient expressed gratitude towards his wife stating that he loved her, and he thanked her for helping with all his independent and dependent activities of daily living. Despite the patient's improving psychosis and increasing insight, both he and his wife continued to insist that the hospital was responsible for the computer chip in the patient's head as part of an experimental program.

Several treatment changes were made given the heightened risk of patient's death from sleep walking or elopement given the limitations of the couple's age and severe folie a deux. Although, the quetiapine had been at a constant dose of 600 mg at night for months without somnambulism, several case reports suggested that quetiapine may contribute to the sleep walking [7,8]. As sleep walking with concurrent psychosis is similar to the elopement of dementia patients, with the risks of patient death [9,10], the need to stop the sleepwalking was considered urgent. Therefore, the bupropion was replaced with a low

dose sertraline titration of 25 mg in the morning for 10 days and then increased to 50 mg for anxiety and depression. The quetiapine 600 mg was stopped and replaced by olanzapine 10 mg twice a day for paranoia and hallucinosis.

Visit 8 2018

In general the psychiatric medications (haloperidol 7.5 twice a day, olanzapine 10 mg twice a day, sertraline 50 mg every morning) had successfully stabilized the patient's paranoia, visual hallucinations, tactile hallucinations, insomnia and depression. His affect was characterized as euthymic, and he denied anxiety and insomnia. His wife had no complaints and stated that her husband was doing "very well". However, the folie a deux paranoid delusion that the hospital had put a computer chip in the patient's head so that world saboteur controllers could torture the patient and have him involved in a worldwide conspiracy to take over the world remained. Despite this, the couple appeared to believe that the chip may no longer be active. The patient continued to have some ego-syntonic delusions, nonparanoid visual hallucinations and tactile hallucinations (Table 1). The treatment plan from visit 7 was continued without alteration at the end of visit 8. It is to be noted that there was continual education of the couple throughout all their visits regarding the association of diabetes mellitus, vascular dementia and end-stage renal disease with the symptoms that the patient had been suffering from for years.

At this point in the treatment program, the patient's sensorium had improved to the point that he understood that his diabetes was involved in some of his symptoms such as his blindness, peripheral neuropathy and end stage kidney disease. By modulating his severe paranoid ideations, depression, visual and tactile hallucinations, he became calmer and he did not have the severe paranoid fear of his tormentors during all his waking hours. However, he admitted that "the controllers sometimes give me shocks on my feet and lower legs at different times during the day even when my socks and shoes are on". Despite this, he was not afraid of being shot by one of the controllers carrying an AK-47 and he did not think that snakes and insects were biting him. He retained the paranoid delusion that the hospital staff had placed a computer chip in his head. However, he believed that he now had control over the controller's commands and that he could use the chip to see and track all the people in his environment. His visual hallucinations of humans had become benign and were not interfering in his daily life. His diabetic retinopathy and blindness had been positively transformed into ego-syntonic delusions as he imagined having "the little boxes that the doctors cannot see in my eyes. The boxes have screens that allow me to see everything that I need to see and nobody can see them except me". Once the patient's paranoid delusions, hallucinosis and depression markedly decreased, the patient's neurocognitive symptoms and executive function improved, exceeding the treatment team's original prognostic outcome.

Discussion

Folie a deux is a relatively infrequent clinical phenomenon usually associated with purely psychiatric syndromes [11]. An unusual aspect of this case is that the folie a deux evolved from the sequela of diabetes mellitus including vascular dementia and end stage diabetes mellitus sequela. This case involves a well-educated engineer/minister, diabetic patient whose symptoms culminated in a downward cascade of cognitive and functional disabilities with progressive anxiety and depression. These factors rendered him unable to read and remember

his church sermons, forcing his retirement. The patient's wife, who had been his primary domestic and emotional support, gradually became his only caregiver.

In folie a deux cases, the passive partner must incorporate the dominant partner's paranoid delusions in order to not rupture the emotional and often financial attachments [11]. Some psychodynamic theories propose that the passive partner has an ambivalent love-hate relationship with the dominant partner. In this case, sharing the same paranoid delusions of her husband was considered to be an unconscious attempt by the patient's wife to identify with his delusional and paranoid ideations [12]. The fundamental shared paranoid delusion that bonded the couple together was that the hospital's medical/surgical team had placed a computer chip in the husband's head, thereby inserting him into a plot orchestrated by saboteurs to take over the world. Consequently, the couple was more reluctant to obtain medical care in a timely manner due to fear of the medical system that they perceived as having created their fear-provoking altered reality. As a result, the patient's renal disease, diabetic retinopathy, diabetic peripheral neuropathy and vascular dementia progressed more rapidly than would be expected, resulting in his legal blindness, loss of ambulation and self-care. A measure of the folie a deux paranoia regarding the hospital and staff was that patient and his wife both initially wore ultra-large full face masks, which revealed only their eyes, when they attended hospital appointments.

The patient's cognition and function decline into his delusional world can in large part be attributed to factors associated with the sequela of his diabetes mellitus. The patient was clinically diagnosed with vascular dementia in 2006, approximately 10 years before he arrived in our mental health clinic. He had been receiving hemodialysis for over 20 years prior to his first appointment with our mental health team. When he entered our clinic in 2016 he was severely psychotic with minimal to no contact with his environment. He lacked decisional capacity and he was totally dependent upon his wife. It is reported that dialysis imposes a heavy biopsychosocial burden on patients older than 55 years of age. The risk of dementia for patients undergoing peritoneal dialysis is lower than for persons undergoing hemodialysis [13]. A prospective study of elderly adults (>60 years old) with advanced chronic kidney disease that transitioned to dialysis found a loss of executive function with no change in other aspects of cognition [14]. However, as many as 70 percent of dialysis patients do experience moderate to severe cognitive deficits including dementia, resulting from repetitive episodes of acute cerebral ischemia [15].

In this case, the visual hallucinations were first recorded in 2014 during hospitalization for an infection of the patient's hemodialysis fistula in addition to renal mass and bilateral pulmonary emboli. When the patient first entered our mental health clinic in 2016, he had florid visual hallucinations. He was in a wheelchair in part due to his legal blindness from diabetic retinopathy and compromised lower leg strength secondary to peripheral neuropathy. The visual hallucinations were exacerbated by his failing eyesight. Acute cerebral ischemia, a common dialysis symptom, is associated with cortical lesions in the occipital and temporoparietal lobes that may precipitate visual hallucinations [16]. It is estimated that approximately 80 percent of patients with dementia develop visual hallucinations during the course of the illness [17]. Early reports associated visual hallucinations among dialysis patients with use of erythropoietin. The severity of the visual hallucinations was directly related to the

erythropoietin dose. As the patient in this case started receiving erythropoietin in 2009 and ended in 2014, erythropoietin can be reasonably be eliminated as a contributing factor for his hallucinosis. Risk factors for visual hallucinations also include age and level of pathology [18]. In this case the visual hallucinations may have been attributed to the ongoing vascular dementia associated with diabetes mellitus and/or cortical lesions associated with dialysis [16,17].

The patient's diabetic retinopathy is considered to be central factor associated with his paranoid ideations and severe hallucinosis. Diabetic retinopathy is more common in chronic kidney disease stages 3 to 5 compared to stages 1 to 2. Renal failure and end-stage renal disease are independent risk factors for microvascular retinopathy, diabetic retinopathy, and diabetic neuropathy [19]. Given the severity of the diabetic retinopathy, the patient was able to see only vague outlines of objects in his line of sight. His vascular dementia and diabetic retinopathy influenced his interpretation of what he was seeing and feeling. As the antipsychotics and antidepressant medications reduced the patient's bizarre paranoid ideations in addition to his visual, tactile and auditory hallucinations his wife's paranoid delusions also became more rationale.

The primary treatments for folie a deux include separation of the couple, antipsychotics, individual and group psychotherapy and family therapy [11]. Separation of the couple was ruled out in this case as the patient's wife was the single caregiver responsible for all the patient's IADLs and ADLs. During all of the mental health clinic visits, her husband had excellent hygiene as he wore a dress shirt, tie, neatly pressed slacks and dress shoes. In addition, she transported him from their home to his entire dialysis clinic and his hospital appointments. The patient's wife's capacity to take her husband to the hospital, despite his severe psychosis and their folie a deux that the hospital staff had implanted a computer chip in her husband's head, demonstrated a parallel, less delusional reality needed to navigate her external environment in the effort to try to help her husband. This altered reality was suspected to be part of her ability to faithfully follow the psychiatry team's treatment plan.

The psychiatry treatment team initiated couples therapy at the first mental health clinical visit. The team spent over 30 minutes during each mental health clinic visit educating the couple about the effects of diabetes mellitus on diabetic retinopathy, peripheral neuropathy, central nervous system neuropathology, end stage kidney disease and diabetic ulcers. However, at the first visit, the patient was too psychotic to benefit as his consciousness was dominated by his reactions to the complex hallucinations and paranoid ideations. It was unclear how much his wife was able to understand during the initial educational sessions. With the continuing titration of antipsychotics and antidepressants, the patient's visual, auditory and tactile hallucinations gradually receded to a point where they were no longer threatening to him. By the eighth visit, although the folie a deux was still ongoing, the couple's quality of life had greatly improved. The patient was able to understand that some of his symptoms were related to his "sugar" (diabetes mellitus hyperglycemia) and he could sleep without fear. However, the treatment did not change the couple's folie a deux paranoid delusions about the inpatient medical/surgical staff. The patient and his wife continued to believe their shared folie a deux paranoid delusions that the hospital staff had implanted a computer chip in the occipital area of the patient's skull.

The team had ongoing telephone checks with the patient's wife and it also welcomed her telephone questions about his care. This

provided a continuous theme of concern for her husband which is thought to have encouraged following the treatment plan [20]. Assistance with the couple's psychosocial problems was an important part in treatment plan as it improved the couple's rapport with the mental health staff. The effort by the treatment team to strongly advocate for the hospital continue to pay for the outpatient renal dialysis clinic close to their home appeared to help the patient's wife's compliance with the complex pharmacological interventions. Following these efforts by the psychiatry team, the patient and his wife stopped wearing the ultra-large surgical masks, suggesting that their fear of being contaminated by the hospital and staff had diminished significantly.

Conclusion

To the best of our knowledge, this is a relatively unusual case of folie à deux in an elderly couple that was precipitated by the metabolic factors associated with the husband's diabetes mellitus which progressed to severe diabetic retinopathy with blindness, end-stage renal disease, advanced peripheral neuropathy and vascular dementia. These pathologies rendered the patient to be wheelchair bound with bizarre paranoid ideations in addition to visual, auditory and tactile hallucinations. The case was complicated by the wife's limited understanding of her husband's medical and psychiatric problems and her inability to seek objective assistance in understanding that her husband was not psychiatrically stable. These factors provided the foundation for the folie à deux. By the time the couple reached our mental health clinic, their shared folie à deux, including paranoid delusions had created an altered reality that drove the couple into social isolation. An unusual point in this case was that despite the wife's anger and shared paranoid delusion that the hospital had planted a computer chip in her husband's head, she was still capable of seeking and implementing medical help for her husband. The psychiatry team's special effort to maintain telephone communication with the patient's wife in between clinic visits was thought to be beneficial in improving family-treatment team rapport. Therefore, despite her folie à deux, she was driven to rigidly following the treatment plan recommended by the mental health team. This suggests that she was capable of constructing a compensatory reality separate from their shared delusions in the effort to adjust to her husband's violent and bizarre ideations and to improve their shared lives. It is hypothesized that continual treatment of the patient and continual education for the veteran's wife will resolve the majority of the paranoid delusions and hallucinations leading to an ongoing quality of life improvement.

References

1. Arnone D, Patel A, Tan GM. The nosological significance of folie à deux: A review of the literature. *Ann Gen Psychiatry*. 2006;5:11.
2. Lasègue C, Falret J. La folie à deux ou folie communiquée. *Annales medico-psychologiques* (Paris). 1877;18: 321-55.
3. Segal DL. *Diagnostic and Statistical Manual of Mental Disorders: DSM-IV-TR*. American Psychiatric Association. 2010.
4. American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Mar 25, 2017.
5. ICD-Classification of Diseases, Functioning, and Disability [Internet]. Atlanta (GA): National Center for Health Statistics.
6. Oulis P, Kokras N, Papadimitriou GN, Masdrakis VG. Bupropion-induced sleep walking. *J Clin Psychopharmacol*. 2010;30:83-4.
7. Hafeez ZH, Kalinowski CM. Two Cases of Somnambulism Induced by Quetiapine. *Prim Care Companion J Clin Psychiatry*. 2007;9(4):313.
8. Raja M, Raja S. Sleep walking in four patients treated with quetiapine. *Psychiatr Danub*. 2013;25(1):80-3.
9. Lester PE, Garite A, Kohen I. Wandering and elopement in nursing homes. *Ann Longterm Care: Clinical Care and Aging*. 2012;20:32-6.
10. Bennet J. Confronting the risk of elopement. *Institute For The Advancement Of Senior Care*, Fall 2017.
11. Kumar PNS, Subramanyam N, Thomas B, Abraham A, Kishore Kumar K. Folie à deux. *Indian J Psychiatry*. 2005; 47: 164-6.
12. Enoch MD, Ball HN. In: *Uncommon psychiatric syndromes*. 4th ed. Enoch MD, Ball HN, editors. New Delhi: Arnold Viva; 2004;179-208.
13. Wolfgram DF, Szabo A, Murray AM, Whittle J. Risk of Dementia in Peritoneal Dialysis Patients Compared with Hemodialysis Patients. *Perit Dial Int*. 2015; 35(2):189-98.
14. Tamura MK, Vittinghoff E, Hsu CY, Tam K, Seliger SL, Sozio S, et al. Loss of executive function before and after dialysis initiation in adults with chronic kidney disease. *Kidney Int*. 2017;91(4): 948-53.
15. Murray AM. Cognitive impairment in the aging dialysis and chronic kidney disease populations: An occult burden. *Adv Chronic Kidney Dis*. 2008 ;15(2):123-32.
16. Chaudhury S. Hallucinations: Clinical aspects and management. *Ind Psychiatry J*. 2010;19(1):5-12.
17. Brendel RW, Stern TA. Psychotic Symptoms in the Elderly. *Prim Care Companion J Clin Psychiatry*. 2005;7(5): 238-41.
18. Steinberg H, Saravay SM, Wadhwa N, Pollack S, Maesaka J. Erythropoietin and visual hallucinations in patients on dialysis. *Psychosomatics*. 1996;37(6):556-63.
19. Deva R, Alias MA, Colville D, Tow FK, Ooi QL, Chew S, et al. Vision-Threatening Retinal Abnormalities in Chronic Kidney Disease Stages 3 to 5. *Clin J Am Soc Nephrol*. 2011; 6(8):1866-71.
20. Goold SD, Mack Lipkin, ML. The Doctor-Patient Relationship-Challenges, Opportunities, and Strategies. *J Gen Intern Med*. 1999; 14(Suppl 1): S26-33.