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Lockdown and Visual Hallucinations in Older People: A Community Perspective

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Abstract

After COVID-19 was declared as a pandemic, different countries have enforced lockdowns, and shielding to mitigate the spread of the virus as preventing loss of lives was the priority. In this report, we will be looking for possible explanations for increased rates of visual hallucinations presented to community mental health teams for older people during the period of lockdown. Various possible underlying causes are explained; however the effect of the lockdown itself with its resultant social isolation and sensory deprivation remains to be the most significant cause. It remains unclear if those negative effects on older people's mental health are going to be reversible in the future.

Keywords: Lockdown; Older people; Visual hallucinations; Community; Dementia; Delirium; Depression; Visual impairment

Introduction

On the 11th of March 2020, the WHO declared that COVID-19 has become a pandemic [1]. Few days later, the older people population in the UK was told to shield and it was expected to be for very long durations [2], which was the situation in many other countries elsewhere. This attempt to shield the over-70s, came as different countries started enforcing lockdowns, curfews, and social isolation to mitigate the spread of the virus, reduce the number of deaths and protect over-burdened health care systems [3].

Visual hallucinations are not an uncommon symptom in older people. This symptom can be either secondary to functional causes or organic causes; however in older people, it usually has greater association with underlying organic causes. From clinical practice point of view, during the period of lockdown in the COVID-19 pandemic, visual hallucinations has been one of the commonest presentations reported to the community teams for Older People Mental Health services. Families were calling frequently reporting that their loved ones were "seeing things". In this report, we will be looking for possible explanations for this new interesting and challenging phenomenon by reflecting on two scenarios (representing multiple cases) which were referred with visual hallucinations during the lockdown period.

Scenario A: An 86 female patient was referred to the Older People Mental Health services with visual hallucinations during the COVID-19 lockdown period. She lived on her own. She has been subject to more social isolation during the lockdown period. She had history of Senile Macular Degeneration causing infrequent visual hallucinations that she used to cope with previously. She also used to have some short term memory problems; however she was generally functioning well with support from her family. Over the period of lockdown, her family noticed that she has been reporting more visual hallucinations, in addition to worsening short term memory and confusion. She was admitted into a general hospital where she had various investigations, including a CT head scan, to exclude any underlying organic cause for the presentation, however no cause was found. She was discharged from hospital with a diagnosis of Unspecified Delirium. Her condition continued to deteriorate at home, where she started to experience frequent visual hallucinations causing her distress. At the same time her short term memory and confusion continued to deteriorate. There was no evidence of any other psychotic phenomena or depressive symptoms. There was no evidence of any parkinsonian symptoms and Lewy Body Dementia and Dementia in Parkinson's disease were excluded. She had multiple courses of antibiotics prescribed by the GP to try to treat any possible underlying infections, with no evidence of improvement in her symptoms. Her score on ACE III was 61/100 and her CT head scan showed generalised ischaemic changes. She had carers, in addition to visiting family members, supporting her with most of her activities of daily living. She was at risk of wandering, as she couldn't recognise her house and wanted to go out to look

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for her house and to escape from the visual hallucinations she was seeing inside the house, which could have put her at risk of contacting COVID-19 in the community as she was in the population that was advised to shield. She was commenced on a trial of an antipsychotic medication with no evidence of improvement in her symptoms so it was stopped, suggesting that her symptoms were not of a psychotic nature. She was prescribed an anxiolytic medication with limited effects. The only factor that was found to reduce her distress was when she had company, for example, carers. She was diagnosed with Vascular Dementia and visual hallucinations caused by Charles Bonnet syndrome. The lockdown period has possibly resulted in deterioration of her short term memory and visual hallucinations secondary to social isolation, sensory deprivation and lack of stimulation. Her main line of treatment was social support by family and social services, symptomatic treatment of the distress caused by her experiences and ongoing treatment of the vascular risk factors.

Scenario B: A 73 years old male patient with a diagnosis of Alzheimer's Dementia has been under the memory services for treatment and monitoring of his cognitive impairment. He was started initially on Donepezil which was stopped later because he was intolerant to its side effects. He was then prescribed Memantine which was gradually increased up to 20 mg with good effect and he was stable on it for many months. He had a serious fall in February 2020 which resulted in stopping Memantine as the family raised concerns that he has been noticed to be drowsy while on Memantine. The patient didn't sustain any injuries from the fall, he was checked by the GP and had various blood tests which all came back normal. After this incident, the patient started to experience new onset visual hallucinations and worsening cognition and confusion which coincided with the period of the lockdown during the COVID-19 pandemic. There was no evidence of any other psychotic phenomena or depressive symptoms. He had a CT head scan to exclude any underlying organic cause for the presentation, including the possibility of intracranial haemorrhage as the patient was on Warfarin; however the CT head scan didn't raise any concerns. The treating team thought that these new symptoms might have coincided with stopping Memantine, so he was re-started on Memantine that was increased up to 10 mg only to avoid the risk of drowsiness and repeated falls. The visual hallucinations continued to deteriorate in frequency and severity causing more distress to the patient and he started to make attempts to leave the house to escape from the visual hallucinations he was seeing inside the house, which increased his risk of wandering and contacting the COVID-19 in the community as he was supposed to be shielding. He was prescribed an antipsychotic medication with no evidence of improvement in his symptoms. On easing the lockdown, the family started to take the patient out of the house more frequently as per the new guidance for the shielding population. The family noticed marked changes in his presentation outside the house where he didn't experience any visual hallucinations and was calm with appropriate behaviour; however he used to see the same visual hallucinations when back in the house. This left the treating team with no explanation to the presentation other than being directly caused by the lockdown with its effects of causing social isolation and sensory deprivation to the shielding older people.

Discussion

In the next few paragraphs, we will be reflecting on some explanations for possible underlying causes for the increased incidence of visual hallucinations in older people in the community

during the lockdown period in the COVID-19 pandemic.

Sensory and perceptual deprivation: "Continuous perception is necessary for consciousness. The field of sensation varies all the time as individual sensations in different modalities from the outside world and from inside oneself compete for attention. "Consciousness consists of the integration of this changing field to form a composite awareness of oneself in one's environment" [4]. Sensory deprivation effects have been explored in various previous studies, which showed that this experience was extremely unpleasant to participants and was associated with visual hallucinations with various degrees of complexity [5,6]. During the period of lockdown, the shielding population were subject to social isolation and sensory deprivation, which might explain the increased incidence of visual hallucinations and can explain both scenarios A and B.

Visual impairment: Charles Bonnet syndrome (CBS) is characterised by complex visual hallucinations generally in the absence of a neuropsychiatric disorder with preserved insight [7]. Previous research suggested associations of the syndrome with old age, eye disease, female sex, social isolation, bereavement, and cerebral disturbance [8-10]. Studies showed a clear association between bilateral impaired vision and CBS, however it was rare for patients with unilateral visual impairment to develop CBS [11,12]. It is also thought to be related to social isolation [13]. Holroyd et al., (1992) found a significant association between complex visual hallucinations and the variable living alone' in their ophthalmic population [11]. The predisposing factors of bilaterally worse vision and living alone support an association with sensory deprivation [11], which is the case for scenario A, whose pre-existing visual hallucinations got markedly worse during the lockdown with its resultant sensory deprivation.

Dementia and Delirium: During the lockdown period, people with Dementia lost their opportunity to attend cognitive stimulation activities, e.g. Cognitive Stimulation Therapy groups, day centres, going out for walks or meals, meeting with friends or family, in addition to missing on their follow up outpatients' appointments in memory clinics as they were cancelled. As cognitive stimulation is essential for preserving the memory, it was expected to see evidence of quicker progression and deterioration in the memory impairment of this population. In the advanced stages of dementia, it is not uncommon to see visual hallucinations as part of the psychotic symptoms in Behavioral and Psychological Symptoms of Dementia (BPSD). Apart from the advanced stages of dementia, visual hallucinations also occur as part of the early manifestations of Lewy Body Dementia and Parkinson's disease dementia. In addition to the above, having underlying dementia can make patients more susceptible to superimposed delirium when physically unwell.

As for the relationship between Dementia, COVID-19 and Delirium, several recent studies have shown that having Dementia can be an additional risk factor to developing severe COVID-19, which can be associated with Delirium. This risk to severe COVID-19 was found not to be only caused by the effects of dementia, advancing age or frailty, or exposure to the virus in care homes, however the effect were partly attributed to underlying genetic variations that put some patients at risk for both COVID-19 and dementia, according to a recent large scale study at the University of Exeter Medical School. In this study, researchers have found high risk of severe COVID-19 infection among participants who carried two faulty copies of the APOE gene (termed e4e4) which is known to increase risks of Alzheimer's disease up to 14-fold and also increases risks of heart

disease. The research team found that carrying these gene mutations doubles the risks of severe COVID-19, even in people who had not developed these diseases [14]. According to a recent systematic review and meta-analysis examining the neuropsychiatric presentations of COVID-19, there was evidence for delirium: confusion in 65% and agitation in 69% of intensive care unit patients in one study, and altered consciousness in 21% who subsequently died in another study. There were two reports of hypoxic encephalopathy and one report of encephalitis [15]. Neuropsychiatric consequences can arise either through direct effects of infection of the CNS or indirectly *via* an immune response or medical therapy [15-18]. In a study in 2011, the researchers examined the response of immunoglobulin G against four human coronavirus strains common at the time. Results showed that more than 90% of adults diagnosed with psychoses had high levels of antibodies to one or more of the viruses, and that all four coronaviruses were more seroprevalent in patients versus controls [19].

In our presented scenarios from the community, COVID-19 was unlikely to be the direct cause to their sudden symptom change, as they were already shielding, there was no evidence of fever or respiratory symptoms and they both had physical examination and investigations done in a general hospital which could not elicit any physical health related cause for the presentation. However, their symptoms appeared to be directly related to the effect of the lockdown itself. Despite this, COVID-19 related Delirium was our top differential diagnosis for any patient from the older people population presenting with sudden symptom change or unexplained symptoms and was frequently seen in the inpatients who tested positive for COVID-19.

Depression: As severe depression can be associated with psychotic symptoms, it could be considered as an additional causative factor for the increased incidence of visual hallucinations during the lockdown. During the lockdown, the shielded population was deprived from seeing their loved ones, in addition to missing on their enjoyable activities including shopping, attending day-care venues, community centres, and places of worship. This was for the foreseeable future without a specific date, which might have led to a sense of helplessness, hopelessness and loneliness. Online technologies could have been used to provide social support networks, however it presented an additional challenge for some of them which could have left them feeling lonely, isolated and secluded [3]. According to one of the recent studies, social disconnection puts older adults at greater risk of depression and anxiety [20]. Another recent study investigated the mental health and wellbeing impact of the COVID-19 outbreak on a convenience sample of UK adults. It showed that the anxiety and depression scores for the sample were markedly higher than normative data derived for the UK adult population's levels of both anxiety and depression. Higher depression scores were associated with participants having to self-isolate prior to lockdown due to symptoms of COVID-19, feeling more isolated than usual during lockdown, or agreeing that the COVID-19 was threatening their livelihood [21]. High incidence of depression in older people during the COVID-19 lockdown could also be explained by other causative factors, other loneliness and social disconnection. It could be secondary to increased alcohol consumption [22], increased rates of elder abuse [23], as well as the negative effects of repeated media consumption about COVID-19 which can lead to an elevated emotional response associated with adverse physical and mental health outcomes [24]. Social distancing and forced isolation might have led to physical de-conditioning and greater sense of disability

which in turn increased the risk of depression. In addition to the above, outpatient appointments in mental health services as well as GP surgeries were cancelled, associated with a significant reduction in community support which might have led to deterioration in the presentation of depressed patients, as well as missing on the newly depressed clients.

Conclusion

There has been a marked increase in reporting visual hallucinations in the shielding older people population in the community during the period of lockdown in the COVID-19 pandemic. This shielded population was not exposed to COVID-19, so it didn't give an explanation to this new phenomenon. Though there are multiple possible causative factors as discussed above, the effect of the lockdown itself with its resultant social isolation and sensory deprivation remains to be the most significant, as per our case scenarios. Shielding the older people population throughout the COVID-19 pandemic came as an essential measure as the physical safety and preventing loss of lives was the priority, however the lockdown had significant negative effects on the mental health of the shielding population, and it remains unclear if those negative effects are going to be reversible in the future resulting in poor quality of life.

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