

Delayed health consequences of Covid-19 lockdown in an older adult

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Key points:

- Organic causes should be considered prior to administering a label of mood disorder or ageing.
- Early recognition and management of delirium is crucial.
- COVID-19 restrictions may negatively impact the very person it intends to protect-the vulnerable older adult.
- Social isolation is associated with poorer neurocognitive and functional outcomes.
- ‘Spillover effects’ of lockdown measures on non-COVID related medical care in older adults is a public health concern.

Abstract:

We report a case of a retired school teacher who presented with rapid cognitive and functional decline following the COVID-19 lockdown period that was diagnosed as worsening depression by referring physician. This highlights the potentially life-threatening consequences of delayed diagnosis and management of delirium, an often reversible syndrome, due to lockdown restrictions. As the pandemic outlives its initial projections, its downstream impact on an already vulnerable population continues to emerge.

Case report

An 84-year-old retired schoolteacher presented to the Geriatrics clinic with significant cognitive and functional decline attributed to depression and loneliness due to COVID-19 by her referring physician. She had a longstanding history of systemic sarcoidosis on watchful waiting and depression following her husband's demise 3 years ago. She remained independent in her basic activities of daily living and was on follow up with a pulmonologist and psychiatrist respectively.

At the height of COVID-19 pandemic patient self-isolated with her domestic helper, as per prevailing health guidelines. Family members continued to communicate with her over the next 2 months through video calls and were alarmed to witness her progressive daytime somnolence, weight loss and need for increasing assistance in feeding and ambulation. She was brought to a General Physician in her neighbourhood as her regular outpatient appointments were postponed as part of pandemic resource diversion measures.

On examination, she was dehydrated and confused with significant postural hypotension from 125/78mmHg supine to 78/50mmHg standing. She was diagnosed with delirium and urgently admitted for further work up. Initial blood tests revealed significant hypercalcemia of 3.91 mmol/L (2.15 - 2.55 mmol/L) and acute kidney injury with creatinine levels of 331µmol/L (50 – 90 µmol/L). There had been no recent serum creatinine or calcium levels assessed. The rest of first line investigations including inflammatory markers and electrocardiogram (ECG) were unremarkable. Parathyroid hormone, PTH-related peptide, 25-hydroxyvitamin D levels and myeloma panel were within normal limits. She was managed for hypoactive delirium precipitated by symptomatic hypercalcemia from systemic sarcoidosis and had significant improvement in mental state and function upon initiation of treatment (**Figure 1**).

Malignancy work up with computer tomography scan of thorax, abdomen and pelvis revealed widespread bilateral reticulonodular densities and left upper lobe scarring. Early morning gastric aspirate cultures returned positive for Mycobacterium kansasii which was subsequently managed conservatively by the pulmonologist.

Discussion

Delirium is a medical emergency that is characterised by inattention and acute cognitive dysfunction.^[1] It is a common presentation of acute illness in the frail older adult and is associated with increased morbidity and mortality.^[2] The term 'delirious' usually brings to mind the agitated patient (hyperactive delirium) and the subtle presentation of hypoactive delirium often goes unnoticed- as in our patient's case. Pre-existing mood disorder labels too may become a 'catch-all' diagnostic category used to explain the unexplained symptoms.^[3]

Delirium screening instruments such as Confusion Assessment Method (CAM) can aid in its diagnosis. The CAM short version consists of 4 cardinal features of a) acute onset b) inattention c) disorganised thinking and d) altered level of consciousness and diagnosis threshold is met with presence of a) and b) with **either** c) or d). When administered appropriately, it has a sensitivity and specificity of over 90%.^[1]

Diagnosis of delirium should prompt a rapid search for potential triggers. The prevalence of hypercalcaemia in sarcoidosis is approximately 5-10% and thus hypercalcaemia-induced delirium was an important differential in our patient that led to subsequent diagnosis of *Mycobacterium kansasii*- another well described cause of hypercalcaemia sharing significant clinical and histological overlap with sarcoidosis.^[4]

Early recognition and management of delirium is crucial to improving its prognosis. Our patient manifested the 'Domino effect' associated with prolonged delirium as the initial management of hypercalcaemia spiralled into a cascade of fluid overload, myocardial infarction and further functional decline.

Delirium remains under-recognised by both physicians and caregivers alike.^[1] The COVID-19 lockdown measures introduced further limitation in access to social and centre based resources to the vulnerable older adult.^[5] Unsurprisingly, an unprecedented trend of older adults presenting with functional and cognitive decline to our facility during this period has been observed.

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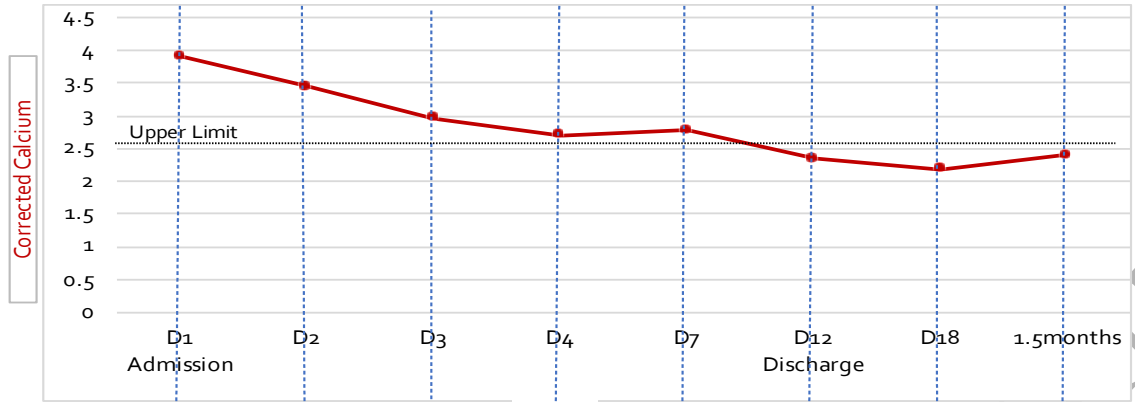
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	D1: Admission		D2		D3		D4		D7		D12: Discharge		D18		D45	
Laboratory Investigations	cCa	Cr	cCa	Cr	cCa	Cr	cCa	Cr	cCa	Cr	cCa	Cr	cCa	Cr	cCa	Cr
	3.91	331	3.45	307	2.97	2.4	2.71	216	2.78	253	2.34	191	2.18	132	2.4	102
Treatment administered	SC calcitonin 400mg/day		SC calcitonin 1600mg/day				SC calcitonin 400mg/day									
	IV fluids 3L/day IV frusemide 20mg/day Hypovolemic				IV frusemide 60mg Hypervolemic				Euvolemic							
	IV hydrocortisone 200mg (equivalent to prednisolone 50mg)						Prednisolone 20mg				Prednisolone 15mg		Prednisolone 7.5mg			
Mental State	Delirious										Alert, lethargic			Alert, conversant		
Physical Function	Ambulate with walking stick 2 person assistance						Transfers 2 person moderate assistance				Ambulate with 1 person assistance				Ambulate with walking stick	

Figure 1: Timeline of investigations/management

Normal reference range

Corrected calcium (cCa) 2.15 - 2.55 mmol/L

Creatinine (Cr) 50 – 90 µmol/L

IV Intravenous