IRIS Associated CNS Toxoplasmosis in a new diagnosis of HIV infection

AM Lanigan[1]; Kelly A[1]; O'Regan R[2]; Crawford R[3]; McConkey S[4]

BEAUMONT HOSPITAL

ROYAL COLLEGE OF SURGEONS IN IRELAND
COLÁISTE RÍOGA NA MÁINLEÁ IN ÉIRINN

Background:

Immune reconstitution inflammatory syndrome (IRIS) describes a syndrome of aberrant reconstituted immunity, often seen in patients with uncontrolled HIV infection. It is characterised by a hyperactive inflammatory response to an infectious or non-infectious agent, leading to a dysregulated immune response against an infecting opportunistic pathogen and the host. Toxoplasmic encephalitis associated with IRIS is rarely described and usually occurs in an unmasking, rather than paradoxical form.

Case Presentation:

Mr X is a A 54 year old Caucasian male admitted to hospital with a six week history of exertional dyspnoea, dry cough, fatigue and weight loss on a background of 20 pack year history. Initial CXR demonstrated a left upper lobe infiltrate which was concerning for an atypical pneumonia versus underlying malignancy. Bloods demonstrated raised inflammatory markers and mild derangement in liver function tests. SARS-CoV-2 PCR negative on admission.

Patient was commenced on IV antimicrobials. CT imaging confirmed the presence of a ground glass opacity and bronchoscopy arranged with BAL washings sent for culture and sensitivites

Patient deteriorates acutely on D11 of admission with development of generalised maculopapular rash and drop in GCS. BAL PCR positive for CMV with high viral load and ID team are asked to consult.

A further collateral history is taken:

- History of gradual weight loss over six months
- Recurrent and unresolving LRTIs x3
- Decline in mental status with increasing low mood, social isolation and self-neglect

Social history:

- Lives alone
- Separated from wife. Two adult children
- Previous travel to UAE and South Africa in recent years
- Occasional alcohol
- No illicit drug use
- No history of MSM

Investigations and Management:

Blood borne virus screen positive for HIV infection with CD4 count 33 cells/uL. High dose co-trimoxazole commenced.
Serum cryptococcal antigen negative and patient is commenced on ARV therapy
CT Brain demonstrates multiple lesions and MRI recommended
Ophthalmology review results in diagnosis of CMV retinitis being made and IV gancicolvir is commenced
Patient continues to decline at ward level over course of week and is transferred to ICU for management of agitation following further decline in cognitive function.
Toxoplasma gondii serology positive
Lumbar puncture performed demonstrated positive CSF PCR for toxoplasma gondii which. MR imaging of brain confirmed the presence of multiple ring enhancing lesions with surrounding oedema in basal ganglia and brainstem. A working diagnosis of Toxoplasmic Encephalitis was made.
Treatment continued along with the addition of IV steroids. After a period of two weeks stay in ICU and slow tapering of both steroids and sedating agents, a gradual improvement in cognitive function was observed.
Repeat MRI Brain demonstrated significant radiological improvements, with reduction in both size and avidity of the identified lesions
Patient was stepped down to ward level care and continued to improve. He complained of distressing visual hallucinations but demonstrated insight. This was felt to be a multifactorial delirium which resolved over time.
Following an intensive rehabilitation period involving multidisciplinary team input, patient was discharged to a community rehabilitation facility where he continues to improve.

Learning points:

Our case highlights the importance of HIV screening in patients presenting with atypical infections in an Irish hospital setting and the role an Infectious Diseases Consults service plays in the management of such complex infection presentations.
It also highlights the late clinical presentation and delay in diagnosing HIV infection during the COVID-19 pandemic with restricted access to services.
This case describes the challenges of managing IRIS associated CNS infection and the paucity of similar cases represented in the literature.
Finally, it demonstrates the importance of multidisciplinary team input in improving patient outcomes when faced with significant disease burden.