Antibiotic-induced Drug Reaction with Eosinophilia and Systemic Symptoms (DRESS) Syndrome in a Complex PJI

Muhamad Fauzi SM[1], Durack A[2], O'Riordan R[1.]
[1]- Infectious Disease Department, University Hospital Waterford
[2]- Dermatology Department, University Hospital Waterford

Ospidéal Ollscoile Phort Láirge
University Hospital Waterford
Regional Cancer Centre South East

CASE PRESENTATION

A man in his fifties presented 6 weeks post emergency ORIF of the left shoulder with a draining, non-healing wound associated with rigors. He was electively admitted from orthopaedics clinic for washout and debridement with arthroplasty retention for clinical suspicion of PJI. Post washout, he was commenced on empirical vancomycin, ceftriaxone and metronidazole. Intra-operative samples were positive for polymicrobial growth - *Enterococcus Fecalis*, *Corynebacterium sp.*, *Strenotrophomonas sp.*, *Pseudomonas sp.*, *Candida Parapsilosis* and anaerobes. His antimicrobials was subsequently tailored for a 12 week course on OPAT.

His clinical and antibiotic course is visualised in the table below. His rash which developed on Day 24 rapidly spread involving approximately 90% body surface area. It was maculopapular, non-desuamating, non-blistering with no mucosal involvement and was Nikolsky's negative. There was no airway compromise. As there were cutaneous features with eosinophilia and several organ involvement - pulmonary edema, liver and renal dysfunction and high creatinine kinase - this clinically correlated with Drug Reaction with Eosinophilia and Systemic Symptoms (DRESS).

<table>
<tr><th></th><th>D0</th><th>D1</th><th>D6</th><th>D8</th><th>D11</th><th>D13</th><th>D19</th><th>D20</th><th>D21</th><th>D24</th><th>D25</th><th>D26</th></tr>
<tr><td>Clinical Progress</td><td>Debridement with retention arthroplasty</td><td></td><td></td><td>PICC insertion</td><td></td><td></td><td>Discharge on OPAT</td><td>Represent with pyrexia (39ºC) & PICC removal</td><td>Recurrent pyrexia</td><td>Rash appearance</td><td>Respiratory distress

Biochemical derangement (liver, renal, eosinophilia, elevated CK & proBNP)</td><td rowspan="5">All antimicrobials held

Started on topical and systemic corticosteroids</td></tr>
<tr><td rowspan="4">Antibiotic course</td><td rowspan="4"></td><td colspan="5">Vancomycin</td><td colspan="3">Switched to Doxycycline</td><td>Switched to Vancomycin</td><td>Switched back to Doxycycline</td></tr>
<tr><td>Ceftriaxone</td><td colspan="6" rowspan="2">Switched to Piperacillin-Tazobactam</td><td colspan="2" rowspan="2">Switched to Meropenem</td><td>Switched back to Piperacillin-Tazobactam</td></tr>
<tr><td>Metronidazole</td></tr>
<tr><td colspan="5">Fluconazole added</td></tr>
<tr><td colspan="6">Co-trimoxazole added</td></tr>
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DISCUSSION

DRESS is a challenging diagnosis due to diversity of cutaneous manifestation and visceral organ involvement. There is no pathognomonic pattern to it's skin eruption. It has a 10% mortality rate. So far 254 cases of antibiotic-related DRESS are reported in the literature.

If DRESS is identified early, it is reversible with prompt discontinuation of offending agent and use of corticosteroids. At the moment there is no predictive factors for negative outcomes identified for DRESS, hence emphasising the importance of suspecting and recognising DRESS. A scoring criteria can be used if DRESS is suspected, which is called RegiSCAR. This patient had a RegiSCAR of 5, which is probable diagnosis. He improved biochemically and clinically once all antimicrobials were held. He was discharged on tapering course of corticosteroids and had no further reactions since.

This patient's PJI was complex. It was polymicrobial with gram-negative organism involvement. Polymicrobial PJIs are traditionally associated with failure. There is no set recommendations in international guidelines for polymicrobial PJI.

Gram negative PJI are less common, but has significant clinical importance because treatment of these infections can be complicated by virulence of organisms and growing resistance to antimicrobials.

The patient had 25 days course of antibiotics, and has been stable for 10 months on follow up. The question arises on balancing risk of side effects from antimicrobials and 'overkill' or over-treating of infections versus relapse or treatment failure. Which is worse ?

REFERENCES

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