STEVEN'S-JOHNSON SYNDROME: A CASE REPORT

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SUMMARY. The Stevens-Johnson syndrome has the appearance of a partial-thickness burn that may lead to a 100% loss of epidermis, requiring the same resuscitation as a severe burn. A 38-yr-old male patient was admitted to the neurosurgery department of the Evangelismos General Hospital in Athens, where immediately after administration of an antiepileptic drug he developed sloughing of total epidermis, high fever, and the clinical picture of a severe burn patient. He was treated as a burn patient with massive cutaneous injuries and the concomitant systemic effects. Fluid resuscitation was important and the Parkland formula was used, as in a burn patient. Steroid medications were initially administered. Systemic antibiotics were discontinued after signs of sepsis and documented infection had been overcome. Improved treatment techniques and critical burn care have decreased mortality and morbidity in cases of the Stevens-Johnson syndrome. Prompt recognition of the disease and cure of the patient by the appropriate staff of the burns centre contribute to the successful treatment of such patients.

Introduction

The Stevens-Johnson syndrome (SJS) is a rare immune-complex-mediated hypersensitivity disorder which affects 7.1 per million persons, and as high a ratio as 49 persons per million will develop erythema multiforme. The known female ratio is 1:2, with however some variations. SJS presents in three different forms which reflect the same condition: a mild form, called erythema multiforme (where <10% TBSA is affected), the main form (between 10 and 30%), and the severe form, called toxic epidermal necrolysis (TEN).

The syndrome was initially described in 1922. Alan Lyell provided an early description of TEN in 1956. Even today, disagreement exists in the literature and many researchers refer to the entity as SJS/TEN.

The most important clinical signs and symptoms of SJS are the following:

• prodromal signs: 2-3 days of malaise, rash, fever, cough, arthralgia, myalgia, rhinitis, headache, anorexia, and nausea and vomiting, with or without diarrhoea
• conjunctivitis, usually occurring 1-3 days before the skin lesions appear
• intense erythema, progressing rapidly to epidermolysis and ceasing in 2-3 days
• blisters
• mucous membrane erosion
• haemorrhagic crusting of the lips
• epidermal detachment
• positive Nikolsky sign
• target-like lesions
• extreme pain

• dehydration, which may lead to hypovolaemic shock and death
• mimicking of the staphylococcal scalded skin syndrome (similar appearance, but blisters rise nearer the skin’s surface)

Stevens-Johnson aetiology is mainly a reaction to medication. More than 80% of cases of SJS/TEN are drug-related and 95% of TEN cases. Bibliographical references report various infections occurring prior to TEN (mostly viral). Several drugs have been identified during the last decade as a triggering cause:

• NSAIDs, especially ibuprofen (2003)
• anticonvulsants (phenytoin, valproic acid, phenobarbital, carbamazepine)
• antibiotics (sulphonamides, aminopenicillins, quinolones, cephalosporins, tetracyclines, imidazole antifungal agents (1995)
• allopurinol
• corticosteroids

A histopathological examination is necessary for differentiation of these disorders from other severe bullous skin diseases (Fig. 1).
The pathophysiology includes epidermolysis as a result of keratinocyte cell apoptosis - an organized series of biochemical reactions leading to cell changes and cell death. The cytotoxic T-cell lymphocytes found in TEN patients’ blister fluid is believed to induce a cascade of intracellular enzymes that results in a rapid, triggered cell death. A strong association between HLA-B*1502 and carbamazepine-induced TEN has been identified.

SJS mortality is determined primarily by the extent of skin sloughing. Generally, when BSA sloughing is less than 10%, the mortality rate is approximately 1-5%. When more than 30% BSA sloughing is present, the mortality rate is between 25 and 35%. The severity score called SCORTEN relates certain variables to mortality rates (Fig. 2).

Fig. 2 - Severity score: SCORTEN.

When SJS/TEN is suspected, the most important step is to refer the patient to a special burn care unit as these syndromes have the same clinical course as a partial- or full-thickness burns. Parkland’s formula for resuscitation is commonly used. The most important point we should keep in mind is that misdiagnosis may rapidly lead to death.

The treatment of the syndrome follows the basic rules of burn treatment:
- prompt detection and withdrawal of all potential causative agents
- early transfer of patients to a burn or intensive care unit
- placement of a central intravenous line in areas of uninvolved skin
- monitoring of fluids and electrolytes. Administer fluids and titrate on the basis of central venous pressure and urine output
- nutrition by parenteral means or enterally via a soft, fine-bore nasogastric tube in patients unable to take nourishment
- early and continuous enteral nutrition reduces the risk of stress ulcers, reduces bacterial translocation and enterogenic infection, and allows earlier discontinuation of venous lines
- use of plasmapheresis, if available, daily for three days. Plasmapheresis may enhance elimination of the drug or offending agents or inflammatory mediators such as cytokines
- application of porcine xenografts to involved areas
- irrigation of the eyes every hour
- mouth washes frequently, and application of a topical anaesthetic or spray for buccal pain
- patient placed in a heated environment
- placement of a Foley catheter
- blood transfusions when anaemia is present
- systemic antibiotics only for documented infection or signs of sepsis (not prophylactic)
- pain relief with patient-controlled analgesia
- patients remain non-ambulatory until wound healing
- anticoagulant therapy - heparin for prophylaxis of thromboembolic events
- avoidance of silver sulphadiazine cream, a sulpha medication - a category of drugs often implicated as a cause of toxic epidermal necrolysis

Materials and methods

A 38-yr-old male, hospitalized in the neurosurgery department for the monitoring of epileptic seizures due to skull base fracture, developed high fever, sloughing of total epidermis, and the clinical appearance of a severe burn patient, immediately after the administration of an anticonvulsant medication (valproic acid).

The signs and symptoms presented upon clinical examination included:
- fever
- pain
- erythema
- positive Nikolsky sign
- conjunctivitis
- target-like lesions
- blisters
- mucous erosions
- haemorrhagic crusting of the lips

The following figures demonstrate the characteristic erythema and oedema and its extent on days 1 and 3 respectively (Figs. 3,4).

As for the patient’s clinical course, the fever never dropped below 38 °C during the subsequent ten days of hospitalization.

At first he was tachypnoic, with acid-base disorders, but haemodynamically stable. He needed oxygen support but not intubation.
Lab tests during the first week produced the following findings:

- white blood cells: 16,000/19,000/UL
- haematocrit: 38.5/30.1%
- C-reactive protein: 0.7/18.8 mg/dl
- lactic dehydrogenase: > 500 IU/l
- Ca+2: 8.5/7.24 mg/dl
- sodium: 128/133 mmol/l

Pus cultures from the fluid of wound and blood cultures yielded positive results:

- methicillin-resistant *Staphylococcus aureus* but vancomycin-sensitive
- *Escherichia coli*
- *Enterococcus faecium* (Linesolid-sensitive)
- *Enterobacter cloacae*

The patient was treated as a burn patient with 100% BSA, as follows:

- direct withdrawal of valproic acid from therapy; close monitoring of neurological status by neurosurgeons
- a central intravenous catheter was placed and the patient was given fluids according to the Parkland formula
- vital signs were monitored every hour
- a Foley catheter was placed to measure urine output
- a soft, fine-bore nasogastric tube was placed because during the first days the patient’s neurological status prevented normal nourishment
- total parenteral nutrition was administered after some episodes of diarrhoea after enteral feeding
- a heated environment was provided
- blood transfusion (three times)
- antiseptic solution applied on affected areas every 2 h

The response to therapy was immediate after resuscitation (Figs. 5-7).

Antibiotics were administered because of prolonged fever and positive blood cultures, not as a prophylactic measure but mainly as a therapeutic measure.

A week of high doses of antibiotics caused a drop in all blood cell series, which was treated successfully with
The patient fully recovered after 20 days of hospitalization and left the plastic surgery department in a good clinical condition (Figs. 9, 10).

Conclusions

Improved treatment techniques and critical burn care have decreased the mortality and morbidity of the Stevens-Johnson syndrome. Prompt recognition of the disease and cure of the patient by competent burn centre staff contribute to the successful treatment of these patients.
RÉSUMÉ. Le syndrome Stevens-Johnson se présente comme une brûlure d’épaisseur variable qui provoque une perte de 100% de l’épiderme qui nécessite la même réanimation qu’une une brûlure sévère. Un patient mâle âgé de 38 ans a été hospitalisé au Service de neurochirurgie de l’Hôpital Général Evangelismos à Athènes, où immédiatement après l’administration d’un médicament antiépileptique il a présenté la séparation totale de l’épiderme, une fièvre élevée et l’aspect clinique d’un patient atteint de graves brûlures. Il a été traité comme un patient avec des lésions cutanées étendues et les manifestations systémiques concomitantes. La fluidothérapie était importante et la formule de Parkland a été utilisée, comme chez un patient brûlé. Initialement des pansements stéroïdiens ont été administrés. Les antibiotiques systémiques ont été suspendus après l’élimination des signes de sepsis et d’infection documentée. L’amélioration des techniques de traitement et des soins pour les patients brûlés en état critique a réduit la mortalité et la morbidité dans les cas du syndrome Stevens-Johnson. L’identification précoce de la maladie et les soins du personnel qualifié d’un centre des brûlés contribuent au succès dans le traitement de cette catégorie des patients.

BIBLIOGRAPHY


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