Tigecycline Successfully Treats One Case of Relapsed Leukemia- Drug-resistant Double Sepsis

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Case report

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Abstract

Background

Nowadays, tigecycline is often used in combination with other antibiotics. To the best of our knowledge, this was the first documented use tigecycline alone for drug-resistant double sepsis in a patient suffering from leukemia.. The aim of this study is to reduce unnecessary drug combinations associated with tigecycline and use antibiotics reasonably.

Case presentation

A 29-year-old young man was admitted to the hospital because of "limb right leg, pain for 4 years, fever, blood in the stool, and sudden disturbance of consciousness for 1 week". The patient was a relapsed patient with advanced acute leukemia, with severe perianal infection and neutrophil deficiency. At the same time, blood culture suggested Acinetobacter luffi (Imipenem resistance) and Enterococcus faecium (vancomycin resistance). Tigecycline is used alone, and conventional doses are used to achieve the effect of curing double sepsis experience..

Conclusions

Generally speaking, tigecycline is a bacteriostatic agent, doctors are used to a combination of Tigecycline and other antibiotics in fighting infections.In this case, tigecycline is used alone, and conventional doses are used to achieve the effect of curing double sepsis experience. This medical record adds to the doctor's experience with the use of tigecycline.

Background

Nowadays, tigecycline is often used in combination with other antibiotics. To the best of our knowledge, this was the first documented use tigecycline alone for drug-resistant double sepsis in a patient suffering from leukemia.. The aim of this study is to reduce unnecessary drug combinations associated with tigecycline and use antibiotics reasonably.

Case Presentation

A 29-year-old young man was admitted to the hospital because of "limb right leg, pain for 4 years, fever, blood in the stool, and sudden disturbance of consciousness for 1 week". Four years before admission, there was no cause of claudication and pain in the right lower extremity. MRI showed L5-S1 spinal canal occlusion. Neurosurgery revealed a myeloid sarcoma after surgical removal of the mass. Three years before admission, bone marrow review showed AML-M2, and bone marrow remission was achieved after chemotherapy with DA (daunorubicin + cytarabine) 3 + 7, and the patient stopped chemotherapy after DA × 3 course of consolidation chemotherapy; Local radiotherapy for L5-S1 during breaks .Two years before admission, both eyes had sudden blindness, and cranial MRI showed intracranial metastasis of leukemia;

whole brain and spinal cord radiotherapy, vision improved slightly, blood routine deteriorated, and bone marrow reexamination showed recurrence of AML reach relief. After repeated vision loss to complete blindness in both eyes, despite repeated lumbar puncture, vision did not improve. 1 week ago with high fever, chills, and perianal pain; blood test routine HGB 65 g / L, PLT 10×10^9 / L, WBC 15×10^9 / L, white blood cell primitive cells 80%. Blood culture was negative, and panipenem betametholone was used to reduce the pain and infection. At the same time, the dark red blood was relieved several times a day, about 100 ml / day. Reduced bleeding after platelet transfusion and intravenous drip of carbsulfonate and tranexamic acid. He had unconsciousness once after bloody stool, without urinary incontinence and convulsions, he recovered after rehydration, red blood cell transfusion support and cooling, and was admitted to the hospital after emergency treatment.

Physical examination revealed that Temperature was 39℃, pulse was 110 times per minute, breath was 25 times per minute, and blood pressure was 120/80 mmHg .anemia appearance, acute painful face, vision loss in both eyes; superficial lymph nodes not swollen and enlarged; liver and spleen not touched; visible in the anus External hemorrhoids, local swelling and tenderness, a suspicious sinus can be seen.

Laboratory investigations showed normal liver, kidney, immune function test results. Blood test routine HGB 60 g / L, PLT 10×10^9 / L, WBC 13×10^9 / L, white blood cell classification primitive cells 90%.Bone marrow smear and flow cytometry showed recurrence of AML, and lumbar puncture of CSF 20×10^6 nucleated cells were routinely found, and cerebrospinal fluid flow cytometry showed AML infiltration. Simultaneous treatment with methotrexate, cytarabine, and dexamethasone triple infusion; sigmoidoscopy was performed due to repeated bloody stools, showing erosion of the mucosa 10 cm from the anus.

After admission to the hospital, he still had blood in the stool after receiving carprosulfuric acid, tranexamic acid intravenous drip, and thrombin enema; and his body temperature improved slightly before IDA (normethorubicin + cytarabine) The 3 + 7 regimen re-induced chemotherapy; granulocyte deficiency in the trough period of chemotherapy, perianal redness, swelling and pain worsened, and the daily redness of the dark red bloody stool continued to be about 50 ml. With high fever, anorectal consultation considers perianal infection with high anal fistula, re-examination of blood routine HGB 59 g/L, PLT 8×10^9/L, WBC 0.14×10^9/L, no primitive cells were found in white blood cell classification; empirically selected antibiotics Panipenem and Betamipron was combined with norvancomycin, but the fever still persisted daily; Check for procalcitonin 2.95 ng/ml; blood draw culture at high fever shows Acinetobacter loffi(Table 1) growth, according to drug susceptibility results: Acinetobacter loffi is resistant to Imipenem, consider carbapenem resistance, select according to drug sensitivity Ceftriaxone combined with levofloxacin; after 2 days still having high fever and bloody stool, blood pressure was measured at 76/34 mmHg, considering septic shock; ceftriaxone and levofloxacin were discontinued according to drug sensitivity, and tigecycline was used for treatment. A loading dose of 100 mg was given first, followed by a intravenous infusion of Q12h at 50 mg; the body temperature showed a downward trend 2 days after the addition of tigecycline, and another blood culture was drawn showing the growth of Enterococcus faecium(Table 2); Enterococcus faecium was resistant to vancomycin; Therefore, norvancomycin was

discontinued; tigecycline alone was used for anti-infective treatment, and 50 mg Q12h intravenous drip was continued for 3 weeks; the patient's temperature gradually became normal, blood pressure was stable, blood in the stool stopped, perianal swelling subsided, pain was reduced, and infection improved. The blood routine examination was HGB 78 g/L, PLT 114×10^9/L, WBC 6.39×10^9/L, the bone marrow reached CR, and the patients were discharged again after a triple intrathecal injection of methotrexate, cytarabine, and dexamethasone.

Table 1
Acinetobacter calcoaceticus var. Lwoffii

Antibiotics	Quantitative Result	Sensitivity	Methods
Tigecycline	≤ 0.5	S	MIC
Amikacin	32	I	MIC
Aztrecoam	≥ 64	R	MIC
Ciprofloxacin	≤ 0.25	S	MIC
Cefazolin	≥ 64	R	MIC
Cefepime	≤ 1	S	MIC
Nitrofurantoin	≥ 512	R	MIC
Imipenem	8	R	MIC
Ampicillin	≥ 32	R	MIC
Amox/k Clav	≥ 32	R	MIC
Ceftriaxone	≤ 1	S	MIC
Cefoxitin	32	R	MIC
Gentamicin	≥ 16	R	MIC
Levofloxacin	≤ 0.25	S	MIC
Tobramycin	≥ 16	R	MIC
Colistin B	18	R	KB

Table 2
Enterococcus faecium

Antibiotics	Quantitative Result	Sensitivity	Methods
Benzylpenicillin	≥ 64	R	MIC
Tigecycline	≤ 0.12	S	MIC
Clindamycin	≥ 8	R	MIC
Ciprofloxacin	≥ 8	R	MIC
Nitrofurantoin	32	S	MIC
Moxifloxacin	≥ 8	R	MIC
Quinupristin&Dalfopristin	1	S	MIC
Ampicillin	≥ 32	R	MIC
Erythromycin	≥ 8	R	MIC
Gms.Screen	SYN-R	R	MIC
Levofloxacin	≥ 8	R	MIC
Sts.Screen	SYN-R	R	MIC
Tetracycline	≥ 16	R	MIC
Vancomycin	≥ 32	R	MIC

The patient's bone marrow remission lasted about 4 months, the leukemia relapsed, and he survived for about 1 + years.

Discussion

The patient was a relapsed patient with advanced acute leukemia, with severe perianal infection and neutrophil deficiency. At the same time, blood culture suggested Acinetobacter luffi (Imipenem resistance) and Enterococcus faecium (vancomycin resistance). Tigecycline has a relatively short time to market. This patient has a good effect on sensitive bacteria. Tigecycline is a glycylcycline antibacterial drug. It inhibits bacterial protein synthesis by binding to the ribosomal 30S subunit and preventing aminoacylated tRNA molecules from entering the ribosome A site. It is similar in structure to tetracycline antibiotics; generally speaking, tigecycline is a bacteriostatic agent; nowadays, tigecycline is often used in combination with other antibiotics; For example,101 (92%) received tigecycline in combination with an antipseudomonal drug[1]. In a multicenter, open-label, randomized, superiority trial,the combination of piperacillin/tazobactam and tigecycline is more effective than piperacillin/tazobactam alone in febrile, high-risk, neutropenic hematologic patients with cancer[2]. Conclusions Although this study could not conclude that combination therapy with tigecycline was superior to monotherapy, when severe infection leaves no other choice, selection of combination drugs according to infection status and in vitro

susceptibility testing is recommended[3]. And clinical use of tigecycline to increase the dose; The package insert of the drug shows that the experience of treating patients with the severe underlying disease was limited. in this case, the patient's immunity is low, The doctor has no other choice according to drug susceptibility results. Tigecycline is used alone, and conventional doses are used to achieve the effect of curing double sepsis experience.

Declarations

Availability of data and materials

All data are fully available without restriction.

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Authors' contributions

Xiao-Han Li analyzed and interpreted the patient data . All authors read and approved the final manuscript."

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Ethics declarations

Ethics approval and consent to participate

The study was approved by the Human Ethics Committee of the West China Hospital of Sichuan University of Traditional Chinese Medicine and complied with the Declaration of Helsinki. All

data/isolates were analyzed anonymously.

Consent for publication

The participant has consented to the submission of the case report to the journal.

Competing interests

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of this paper.

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