

Case Report

Exercise intervention in dapsone hypersensitivity syndrome

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ABSTRACT:

Dapsone is a well-known oral drug used for leprosy, dermatological conditions and a variety of infections. If taken overdose it can lead to many adverse drug reactions making it important to be recognised in the early stage. Here, we report a case of dapsone hypersensitivity syndrome that was managed by our team approach i.e. physicians, dermatologist, dietician, psychiatrist, physiotherapists, and many social and health professionals. This case is written to encourage the role of the physiotherapist in drug-induced weakness and how treatment plans can be designed for a successful outcome.

Keywords: Dapsone, hypersensitivity, drug-induced weakness, exercise, physiotherapy

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INTRODUCTION

Dapsone (4, 4'-diamino-diphenylsulfone) is one of the commonly implicated oral drugs in drug-induced systemic hypersensitivity syndrome. It is used for treating and prophylaxis of a variety of infectious, immunological and hypersensitivity disorders. ^[1]Hypersensitivity reactions to dapsone are generally potentially fatal adverse drug reactions of unknown pathomechanisms with unknown prevalence and risk factors. ^[2] Manifestations of Dapsone Hypersensitivity Syndrome include high-grade fever, skin rash, lymphadenopathy and lymphocytosis. ^[3] A previously diagnosed case of mixed cholestasis and hepatitis pattern of drug-induced liver injury due to dapsone had come to our department which was later on diagnosed as dapsone hypersensitivity syndrome. The Patient had developed drug-induced weakness and tender spots for which physiotherapy evaluation and treatment were given to the patient. As no study on physiotherapeutic intervention to hypersensitivity reaction was done before, the lacunae still persists, this study was conducted to understand the importance and need of physiotherapy in drug-induced weakness conditions.

CASE DESCRIPTION

A 44-year-old gentleman with a BMI of 18.4kg/cm² came to Sunshine hospital, Bhubaneswar, Odisha with complaints of fever with chills, dysphagia,

odynophagia, oral ulcerations, jaundice, and skin lesions over the entire body. Enquiry revealed that he had on and off multiple skin lesions of unknown nature for the last 5 years and had taken medicine i.e. dapsone for the last 15 days. However, no reports on skin biopsy or liver biopsy were available.

On further evaluation, the patient had extensive mucosal ulceration of the conjunctiva, oral mucosa, and pharyngeal mucosa, along with white plaques in the oral cavity and tongue. He had extensive skin lesions with desquamation, peeling, and erythema. Psoriasis flakes were visible at the glans and meatus. Scrotal skin was peeling off. Rhonchi were audible on chest auscultation. CVS and abdominal examination were normally gross. The patient was febrile at 103 degrees Fahrenheit. EGD (esophagogastroduodenoscopy) showed extensive oropharyngeal and oesophageal ulcerations with candidiasis. Cardiac assessment and biopsies could not be done as SPO₂ was fluctuating throughout the procedure. As per the investigation reports, the patient was diagnosed with “**dapsone sensitivity syndrome**”.

The patient was treated with intravenous fluids, medications, eye drops, dermatological care and nursing care. The patient could tolerate oral semisolids, had adequate urine output, low-grade fever, extensive skin flakes, and tachycardia with mean arterial pressure of more than 65 at all times.

The patient had developed steroid-induced muscle weakness and had a pain score of 7 on the visual analogue scale. The patient was thereafter referred for physiotherapeutic intervention and management.

On physical examination, it was found that the patient was unable to perform movements in full range against gravity in all primary directions of both upper limb and lower limb. Balance and coordination were poor with a high risk of falls. The patient was partially dependent on his caretakers for both bed and functional activities and also had poor core stability and body control. The patient was encouraged to answer the World Health Organization Quality Of Life Questionnaire for a better understanding of his perception of life. All the required data were recorded and analysed for an exercise program.

Initially, low-intensity exercises were initiated concentrating more on major muscle groups i.e. free body movements with repetitions of major joints, relaxation exercises, spinal exercises and balance exercises along with gait training. As the patient could get easily fatigued and showed poor endurance same exercises were continued until the patient could perform movements against gravity in full range. Later, the exercises were modified to functional reach outs, weight-bearing exercises and core stability exercises. As the patient was easily fatigued no vigorous exercises were performed. The patient showed improvement by minimizing the dependency on caretakers for functional and bed activities. Gradually the intensity of the exercises was increased and modified as per the physical status and functional evaluation of the patient. Exercises were continued for the entire hospital stay.

Along with the dermatological approach, medications, proper diet, nursing care, patient counselling and physiotherapy were provided for faster recovery to which the patient responded well. Universal precaution guidelines were followed to enhance recovery rate like usage of gloves, thoroughly washing hands and disinfection of equipment were done before and after each session to prevent spread of infection. With time, care and a patient-centric approach the flakes on the skin reduced and appeared on 30% of the body surface area and the patient was doing better. The dermatologist made a diagnosis of Eczema herpeticum and started treatment. On the requirement of expert care, the patient was sent to a higher centre for further evaluation and treatment. Before discharge, the world health organization's quality of life questionnaire was evaluated again to which the patient showed improvement in his physical and mental status.

However, the patient was encouraged and advised to continue exercises and other treatment plans at home. The patient had a stay of 30 days at the hospital and a follow up was taken after 1 month of discharge. The patient had recovered well and had good endurance

and was independent enough to perform all activities of daily living.

DISCUSSION

Dapsone syndrome was first referred to as glandular fever in 1949^[4] and was described as a combination of at least two of the following components; 1) Fever, 2) Lymphadenopathy, 3) generalized rashes and 4) hepatitis.^[5] Later on, it was termed dapsone syndrome by Allday and Barnes in 1951.^[6] Dapsone is the first choice of treatment for leprosy and its manifestation starts after 6 weeks of intake. Dapsone syndrome is a rare hypersensitivity reaction syndrome with an incidence rate of 0.5% to 3%.^[2,3] Clinical presentation of hypersensitivity reaction differs individually and to date, no reliable test to predict dapsone hypersensitivity is present. Besides the liver, other organs, like renal, cardiac, pulmonary, and pancreas can also be involved. The adverse effects might include the central nervous system, eye, ear, nose, throat, gastrointestinal, dermatomes, blood counts etc.

A patient previously diagnosed with mixed cholestasis and hepatic pattern of drug-induced liver injury due to dapsone was referred to sunshine hospital, Bhubaneswar. As no record of investigations of skin biopsy and liver biopsy was available with the patient and he appeared in critical condition so the patient was admitted to the hospital for further evaluation and management. Based on the history provided and investigation done at our set up he was diagnosed with Dapsone hypersensitivity reaction.

The patient had developed many side effects i.e. headache, insomnia, mood changes, tonic-clonic movements, vertigo, blurred vision, tinnitus, Stevens-Johnson syndrome etc. for which the treatment of hypersensitivity reaction is the patient-centric team approach. This combines physicians, dermatologists, dieticians, psychiatrists and physical therapists and many social and health professionals. Even though the role and importance of physiotherapy are well known any systematic approach concerning the intervention and treatment goals in relation to physiotherapeutic intervention is still a lacuna.

For a better understanding of the overall health status of the patient, we used a self-screening questionnaire. The world health organisation quality of life questionnaire is a cross-cultural instrument and focuses on physical health, psychological, social relationship and environment.^[7] This questionnaire was used first to check the current status of the patient and later on at the time of discharge to check the prognosis of his overall health status. The patient and his caretakers were advised on his precautions, protective clothing, side effects and usage of sunscreen and lotions.

Since this was a single study, further metacentric studies can be done on a larger population to understand the role and importance of physiotherapy

and also to have a better understanding of the clinical impact of dapsone.

CONCLUSION

Dapsone hypersensitivity syndrome is a life-threatening complication. Clinicians should be well aware of the dapsone therapy to recognise the early sign of hypersensitivity reactions. The Patients and the caretakers should be well aware of and explained its side effects and precautions by the clinicians. In this case, exercise intervention has shown improvements in the health status of the patient, hence; exercises should be encouraged and practised under the supervision of the physiotherapist. The importance of physiotherapy is widely accepted and should be acknowledged in drug-induced weakness and can be studied further.

CONFLICT OF INTEREST

Nil.

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