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RESEARCH ARTICLE

INTEGRATED SEMINAR: INNOVATIVE PG TEACHING TOOL FOR MANAGING PATIENT LIVING WITH HIV/AIDS(PLWHA) WITH SYPHILIS

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Abstract

Introduction: Seminars are useful teaching tool for better learning as it integrates all the participants of different departments at single place with Audio-Visual Aids. The index case was discussed with an intent as a Post Graduate teaching tool Internal Medicine to help residents learning rare case of PLWHA co-infected with syphilis.

Methods: The audience were 35 Junior Residents and 20 faculties from the Departments of Medicine, Paediatrics, Microbiology, Pathology and Radiology. The case was presented by Junior Resident, moderated by senior faculty at a predetermined place and time. The competencies discussed in this seminar were confirmation of diagnosis of HIV, discussion involving work up of newly diagnosed PLWHA and to teach treatment strategies while managing such a case in out-patient department. Approved predetermined feedback form was circulated using google form on WhatsApp between JRs and faculty. Their responses were collected and compiled.

Results: The case was presented and discussed in a healthy tension free atmosphere at a neutral venue with active participation from residents and faculty. The session was concluded stressing on the basic principles of management of PLWHA and monitoring of ART. At the end of the lecture the residents were very confident in suspecting a patient, approach, diagnosis of case of HIV and subsequent management.

Conclusion: Integrated seminars are effective teaching tool in PG teaching specially for learning management of rare cases like syphilis co-infected with HIV where multiple departments horizontally and vertically are involved**.**

Introduction:-

A seminar is a gathering at which a topic is discussed involving two presenters and many participants. They are usually interactive sessions. The sessions are moderated by one or two presenters who runs the discussion in the desired path. In an institution, seminars are for the purpose of education, where the participants discuss about the academic subject. The aim of these kind of seminars is to gain better knowledge about the topic.

The lecture is the most common method of transmitting information in medical schools (1). In the teaching hospitals the interns, Junior residents(JRs), Senior residents(SRs) learn by working in the wards, Intensive care units (ICUs), Emergencies, Outpatient departments (OPDs), Bed side case presentations, during their training periods. Discussion of topics like Human Immunodeficiency Virus (HIV) /Acquired Immunodeficiency Syndrome(AIDS) does not suit

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for bedside clinics as the topic is vast, involves more than one department, and all the findings are not seen at a time in the patient. Seminars are useful for better learning of such topics as it integrates all the participants of different departments at single place with Audio-Visual Aids.

The index case was discussed with an intent as a teaching tool for (Post Graduate) PG students in Internal Medicine to help them in leaning diagnosis and management of newly detected case of Patient Living with HIV/AIDS PLWHA co-infected with syphilis.

Methods:-

The case was presented as a seminar at tertiary care Government Hospital integrating vertical and horizontal departments under one roof. Patient consent was taken for this discussion. The competencies discussed in this seminar were confirmation of diagnosis of HIV, how to discuss steps in work up of newly diagnosed PLWHA and to stress upon various treatment strategies and follow up goals while managing such a case in out-patient department. The audience were 35 Junior Residents and 20 faculties from the Departments of Medicine, Paediatrics, Microbiology, Pathology and Radiology. The case was presented by Junior Resident, moderated by senior faculty at a predetermined place and time. The summary of case was given to all stake holders with adequate preparation time. The case was presented using (Microsoft power point presentation) MS ppt and projected with the help of AV aids. Approved predetermined feedback form was circulated using google form on WhatsApp between JRs and faculty. Their responses were collected and compiled.

Results:-

The case was presented and discussed in a healthy tension free atmosphere at a neutral venue with active participation from residents and faculty. The case details were as follows:

A 29-year-old medical graduate, resident of North India presents to the medical OPD with complaints of fever and persistent small bowel diarrhoea since past 2 weeks in the month of December 2022. The fever was low grade, intermittent, associated with generalised malaise and responded to antipyretics. He gave history of weight loss of 5 kg in one month, with red coloured rash all over the body. There was a history of unprotected sexual intercourse 4 years back. On physical examination, there was a generalized lymphadenopathy involving cervical, inguinal and axillary lymph nodes. The nodes were multiple, bilateral, firm in consistency, maximum 2.5 cm in size, mobile and non-tender. He also had features of seborrheic dermatitis and maculopapular erythematous rash all over body excluding palms and soles. Systemic examination was normal. On investigations complete blood count (CBC), biochemical and metabolic parameters were normal. The stool routine examination and microscopic examination, stool culture and sensitivity, blood culture and sensitivity, urine culture and sensitivity, chest x ray, ultrasound examination and tropical fever work up was negative. He was tested positive for HIV 1 on tridot test. The details of various tests done for confirmation of diagnosis are placed in table 1. On further screening as a part of protocol, he was detected VDRL positive and other syphilitic tests done to confirm the diagnosis were placed in table 2. The Cerebrospinal fluid (CSF) cytology was acellular and Adenosine Deaminase (ADA) levels were normal, CSF gram stain and CSF Cryptococcal Antigen (CRAG) was negative.

Table 1:- Results of various HIV tests in index case.

INVESTIGATIONS	**RESULTS**
HIV Rapid test (IMMUNOCHROMATOGRAPHY)	REACTIVE
HIV TRIDOT test (FLOW THROUGH ASSAY)	REACTIVE
ELISA(Enzyme linked Immunosorbent Assay) IV Generation	REACTIVE
(Clusters of Differentiation)CD4 COUNT	200 cells/microliter(ul)(448-1611)
CD8 COUNT	2339 cells/ul (218-1396)
HIV 1 VIRAL LOAD (QUANTITAVE)	490127 COPIES /Milliliter(ML)

Table 2:- Results of various treponemal and non treponemal tests in index case.

INVESTIGATIONS	**RESULTS**
VDRL	REACTIVE
TPHA (Treponema pallidum Haemagglutination test)	REACTVE(++++)
FTA-ABS(Fluorescent Treponemal Antibody	REACTIVE(++)

Absorption Test)	
ENZYME IMMUNO ASSAY	REACTIVE(+)
POINT OF CARE RAPID TEST (LATERAL FLOW ASSAY)	REACTIVE (+)

The contrast enhanced computed tomography (CECT) chest and abdomen revealed generalised lymphadenopathy. In this case there are multiple enhancing discrete cervical lymph nodes, hilar and mesenteric lymph nodes were seen in the CECT chest and abdomen. The USG guided trucut biopsy of right cervical lymph node was done and the histopathological report was suggestive of reactive lymphadenitis. The Cartridge based Nucleic Acid Amplification Test (CBNAAT) was done on sputum, lymph node biopsy and colonic biopsy specimen was negative for Mycobacterium Tuberculosis. Patient underwent sigmoidoscopy, in which the rectum was erythematous and there were aphthoid ulcers. Biopsy of ulcer was done which was non- specific. The patient was diagnosed to have Immune surveillance and Latent syphilis. He was started on TLD (Tablet Tenofovir 300 mg + Tablet Lamivudine 300 mg + Tablet Doltegravir 50 mg) regimen. Inj Benzathine penicillin 2.4 million units intramuscular once a week for three weeks was given. He responded well and was discharged and presently under follow up.

Discussion points between Professor Medicine and Junior Residents

1. What are the Differential Diagnosis in this case?

This patient 28 years old gentlemen who presented with fever and persistent diarrhea associated with unintentional weight loss with h/o exposure to unprotected sex, found to have generalized lymphadenopathy, maculopapular rash and seborrheic dermatitis. The differentials of persistent diarrhea in an immunocompromised individual were largely due to infection of Rotavirus, adenovirus, (Cytomegalovirus)CMV, (Herpes simplex virus) HSV, HIV, Bacteria (Salmonella, shigella, clostridium difficile, Escherichia coli), Fungi (Microsporidium, histoplasmosis, candida spp), Parasite (cryptosporidium, giardia lambia, entamoeba histolytic), Mycobacterium (Mycobacterium avium complex, Mycobacterium tuberculosis).

2. How to confirm diagnosis of HIV in a patient detected tridot positive?

After the patient was detected tridot positive the diagnosis of HIV is confirmed by either demonstration of antibodies to HIV and/or the direct detection of HIV or one of its component. Common laboratory-based platform is the ELISA, also referred to as an enzyme immunoassay (EIA) detect antibodies to HIV-1 or HIV-2 with detection of the p24 antigen of HIV. EIA tests are generally scored as positive (highly reactive), negative (nonreactive), or indeterminate (partially reactive).The patients suspected of having HIV infection based on Tridot positive or EIA reactive are confirmed by HIV-1– or HIV-2– specific antibody immunoassay or a plasma HIV Ribonucleic acid (RNA) level.CDC recommendations indicate that a positive fourth-generation assay confirmed by a second HIV-1– or HIV-2–specific immunoassay or a plasma HIV RNA level is adequate for diagnosis.

3. Why the test for syphilis was done in this case? What are the various tests available and their utility in clinical staging of syphilis?

All the patients who are diagnosed with HIV, comprehensive laboratory tests are done to rule out opportunistic infections and to determine baseline safety parameters (2). So to rule out syphilis, VDRL was done in this case. The serological tests for syphilis are Non treponemal tests and Treponemal antibody test. Non treponemal tests which detects antibodies nonspecific to syphilis antigens. They are venereal diseases research laboratory (VDRL) test, Rapid plasma reagin (RPR) test. False-positive nontreponemal tests are seen in tuberculosis, rickettsial infections, Infective endocarditis and pregnancy. These tests are useful in screening, assessing the clinical activity and monitoring the response to therapy.

Treponemal antibody tests are specific for antibody to syphilis antigens. They are Treponema antigen based enzyme immunoassay (EIA) for IgG and IgM, Treponema pallidum haemagglutination assay (TPPA), Pallidum particle agglutination assay (TPPA), Fluorescent treponemal antibody- absorbed (FTA-ABS) test. False-positive results may be seen in inflammatory diseases, such as systemic lupus erythematosus. Treponemal tests like FTA-ABS test TPHA, EIA are used in confirmation of diagnosis. (3)

4.What are the various stages of syphilis and its management?

The patient may present in any stage of syphilis. The various stages of syphilis are A) Primary Syphilis: This stage is characterized by a painless indurated ulcer which develops on genital, anal or oral region associated with regional lymphadenopathy. B) Secondary Syphilis: This occurs 6 to 8 weeks after the development of chancre. Constitutional

symptoms such as mild fever, malaise and headache are seen. Maculopapular rash occurs in 75 % of patients. Other features of secondary syphilis include meningitis, cranial nerve palsies, anterior or posterior uveitis, hepatitis, gastritis, glomerulonephritis or periostitis. C) Latent Syphilis: This phase is characterized by the presence of positive syphilis serology or the diagnostic CSF abnormalities of neurosyphilis in an untreated patient with no evidence of clinical disease. In early latency that is within 2 years of infection, syphilis may be sexually transmitted. D)Late syphilis (Tertiary): A progressive general paresis and tabes dorsalis are common features. Aortic incompetence and gummatous syphilis are other clinical manifestations in this stage. (4)

Table 3:- Treatment Guidelines of syphilis(4).

Stage	(Centres for disease control and prevention)CDC (sexually transmitted disease)STD Treatment Guidelines	(World health Organisation Sexually transmitted Infections) WHO STI Guidelines
Primary / Secondary	2.4 (Million units)MU Benzathine Penicillin G IM(Intra muscular) one Dose	2.4 MU Benzathine Penicillin G IM one Dose
Early Latent	2.4 MU Benzathine Penicillin G IM one Dose	2.4 MU Benzathine Penicillin G IM one Dose
Late latent/ Unknown Duration	2.4 MU Benzathine Penicillin G IM one Dose per week for 3 weeks	2.4 MU Benzathine Penicillin G IM one Dose per week for 3 weeks
Tertiary without evidence of neurosyphilis	2.4 MU Benzathine Penicillin G IM one Dose per week for 3 weeks	No set recommendation
Neurosyphilis	Aqueous crystalline penicillin G 18-24 MU per day for 10 – 14 days;3-4 MU IV every 4 hours or continuous IV for 10 – 14 days.	No set recommendation

5. What are the treatment goals and strategies in managing newly detected PLWHA?
The clinical goal is to increase the survival period and improvement in quality of life of PLWHA. The other goals are sustained reduction in the viral load, quantitative and qualitative immune reconstitution, while maintaining future treatment options, limiting drug toxicity and facilitating adherence, reduction of HIV transmission by suppression of viral load.

6. How to follow up of such cases in OPD?
PLWHA on Anti retro viral therapy (ART) are followed up on OPD to see clinical improvement, to monitor side effects of drugs. Monitoring includes clinical monitoring and laboratory monitoring. Clinical and laboratory monitoring is carried out at regular intervals. 1. Growth monitoring of children that is weight for height, 2. Treatment compliance -every visit, 3. Clinical monitoring, 4-symptom TB screening- every visit, 5. Screening for common Non communicable diseases (NCD); Hypertension, Diabetes mellitus -every 6 months or symptom directed, 7. Laboratory evaluation based on ART regimen- every 6 months or symptom directed 8.CD4 Count CD4 every 6 months and 9. Viral load At 6 months, 12 months and then every 12 months.(6)

Feedback received from residents
It was an interactive session discussing approach to a case of a young individual with acute febrile illness, persistent diarrhoea, erythematous rash and weight loss with h/o promiscuous sexual exposure. The differentials of each symptom were listed out. Emphasis was laid on diagnosis of HIV, clinical syndromes and opportunistic infections associated and initiation and follow up of ART. Representative images, charts and diagrams were included for better understanding. The session was concluded stressing on the basic principles of management of PLWHA and monitoring of ART. At the end of the lecture the residents were very confident in suspecting a patient, approach, diagnosis of case of HIV and subsequent management**.**

Feedback given by faculty
The session was very informative, well conducted, well answered and was a good learning session for the residents as well as faculty.

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Declaration of Conflicting Interests
The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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