EAS Journal of Anaesthesiology and Critical Care
Abbreviated Key Title: EAS J Anesthesiol Crit Care
ISSN: 2663-094X (Print) & ISSN: 2663-676X (Online)
Published By East African Scholars Publisher, Kenya

OPEN ACCESS

Volume-7 | Issue-3 | May-Jun-2025 | DOI: https://doi.org/10.36349/easjacc.2025.v07i03.005

Original Research Article

Analysis of Early Deaths among HIV Patients Admitted to the Medical Emergency Department of CHU Treichville in Abidjan (Côte d'Ivoire)

Ango Privat Désiré[1,2*], Kouamé Antoine[2], Kouakou Affoué Gisèle[3], Koné Kadidia[1,2], Kouassi Jean[2], Sai Sontia Servais[2], Kouamé Koffi Isidore[2]

[1]Université Felix Houphouët-Boigny (UFHB), Medical Emergency Department (SUM), CHU Treichville
[2]UFHB, Department of Anesthesia and Intensive Care (SAR), CHU Treichville
[3]UFHB, Department of Infectious and Tropical Diseases (SMIT), CHU Treichville

Article History
Received: 22.04.2025
Accepted: 27.05.2025
Published: 20.06.2025

Journal homepage:
https://www.easpublisher.com

Quick Response Code

Abstract: ***Introduction*:** The occurrence of deaths among HIV-positive patients in the Medical Emergency Services (MES) is frequent but has been poorly studied in Côte d'Ivoire. This study aimed to determine the mortality rate among HIV patients and identify factors associated with early deaths of patients admitted to emergency services. ***Materials and Methods***: This was a retrospective cohort study conducted from March 1, 2022, to February 29, 2023 (a 1-year period) at the MES of Treichville. Included in the study were patients admitted for HIV-related complications and those newly diagnosed with HIV at MES. Excluded were HIV-positive patients who died upon arrival (arrival time < 1 hour). The parameters studied included reasons for admission, sociodemographic variables (age, sex, HIV status), clinical variables (medical conditions, clinical stage according to WHO 2007, CD4 count), and the mortality rate. Data analysis was performed using Epi Info software. ***Results*:** Among 4,036 admissions to MES, 221 patients (prevalence 5.48%) were HIV-positive. The mean age was 35 (±0.9) years, with a sex ratio of 0.75 and an age range of 16 to 78 years. There was a predominance of females (n=126). Patients already diagnosed as HIV-positive prior to admission accounted for 79.60% of the sample, among whom 60.80% were non-adherent to antiretroviral treatment. The most common reasons for admission were altered consciousness (45.7%), respiratory distress (24.4%), and diarrhea (11.8%). Cerebral toxoplasmosis (26.7%) and pulmonary tuberculosis (15.8%) were the most frequently diagnosed conditions. Patients with CD4 counts < 200 (OR= 0.4003; CI= 0.1875-0.8135, p=0.007706) and WHO stage > 2 (OR= 0.38; CI= 0.1934-0.7611, p=0.0036) had poorer outcomes. The mortality rate was 26.7%. ***Conclusion***: Early deaths occurred predominantly among young adults. The mortality rate was high, underscoring the need to establish voluntary testing centers nationwide and provide support for people living with HIV. Decreased immunity contributes to the occurrence of HIV-related complications.

Keywords: HIV-related complications – Mortality – Poor adherence to ART and cotrimoxazole – Medical emergencies at CHU Treichville.

INTRODUCTION

In 2022, UNAIDS estimated the number of AIDS-related deaths at 630,000 individuals [1]. These deaths result from HIV (Human Immunodeficiency Virus) infection and occur in a clinically complex context involving the failure of multiple systems and organs [2]. This represents a major public health issue worldwide, particularly in developing countries [1, 2].

According to Kra *et al*. [3], in the Department of Infectious and Tropical Diseases at the CHU Treichville (SMIT), severe immune system failure is observed in almost all patients living with HIV (92.4% with a CD4 count < 350 cells/mm³ and 59.7% with a CD4 count < 100 cells/mm³).

An earlier study focused on the management of people living with HIV (PLHIV) in the Medical Emergency Services at CHU Treichville [4]. However, the prognostic aspect and the associated determinants were not addressed. Moreover, given the advancements in HIV management in recent years, these studies—

***Corresponding Author:** Ango Privat Désiré
Université Felix Houphouët-Boigny (UFHB), Medical Emergency Department (SUM), CHU Treichville

dating back more than a decade—do not adequately reflect the current situation of PLHIV in MES.

The objective of this study was to determine the mortality rate of HIV patients overall, stratified by complications or opportunistic infections, to identify factors associated with early deaths of patients admitted to emergency services for HIV.

METHODOLOGY

Study Setting

This study was conducted in the Medical Emergency Services (MES) at CHU Treichville. The department includes a resuscitation room with four beds.

Study Type and Period

This was a retrospective cohort study carried out from March 1, 2022, to February 29, 2023 (a period of one year).

Study Population

We included all patient records of people living with HIV (PLHIV) admitted for complications and those who tested positive for HIV, confirmed by Western Blot, in the MES. Excluded were records of HIV patients with incomplete information and those who died less than one hour after admission.

For each patient, we analyzed the following:

- Sociodemographic variables: Age, sex, marital status, lifestyle, and whether HIV was newly diagnosed or previously known at the time of admission.
- Medical history: Opportunistic infections, comorbidities (hypertension, diabetes), use of antiretroviral therapy (ART) and/or prophylaxis with Sulfamethoxazole + Trimethoprim (PST) prior to admission, and lifestyle habits (smoking, alcohol use).
- Clinical variables: Reason for admission, medical conditions, clinical stage according to WHO 2007 [5], and therapeutic data (ARV and/or cotrimoxazole prophylaxis).
- Paraclinical examinations: Complete blood count, blood urea, creatinine levels, CD4 count at diagnosis, toxoplasmosis serology, brain CT scan, and chest CT scan with or without contrast injection, depending on the patient's medical history and clinical examination.

The 1993 CDC (Centers for Disease Control and Prevention) Atlanta classification was used to correlate the progressive stage (death) of HIV infection.

Data Collection

Data collection was carried out using documents such as patient records, care registers, and patient registration logs from the Short-Stay Hospitalization Unit (UCDH). The information was transcribed onto a standardized individual survey form. Following this initial collection, patients were sorted according to our inclusion criteria.

Operational Definitions of Terms

Hyperleukocytosis: White blood cell (WBC) count > $10 \times 10^3/mm^3$.

Leukopenia: WBC count < $2 \times 10^3/mm^3$.

Anemia: Hemoglobin level < 7 g/dl.

Renal failure: Glomerular filtration rate (the volume of plasma filtered by the kidneys per unit of time) < 60 ml/min.

Pulmonary tuberculosis: Positive Gen Xpert test for Mycobacterium tuberculosis (MT) in sputum, gastric aspirates, or bronchial aspirations.

Cryptococcal meningitis: Presence of Cryptococcus neoformans in cerebrospinal fluid (CSF).

The following parameters were collected

The evolution:

duration of hospitalization, the outcome of the patients. The patients evacuated from the medical emergency room to a hospitalization service were monitored at 30 days. The contact details (telephone numbers, email addresses) of the patients and/or one of the parents were recorded, for the occasion.

Identification of factors associated with early death using the Cox model:

Dependent variable: Death was considered HIV-related if the cause was an AIDS-defining event according to the 1993 CDC criteria.

Explanatory variables: Age, sex, reason for admission, and CD4 count.

Data entry was performed using Microsoft Word 2007 and analyzed with Epi Info version 7.2. Statistical tests included the Chi-squared test corrected by Yates and Fisher's exact test, with a p-value ≤ 0.05 considered significant.

Ethical and Administrative Considerations

Patient inclusion was conducted while ensuring anonymity and confidentiality.

RESULTS

Epidemiological Characteristics:

We collected 221 records of patients admitted for HIV-related complications based on our inclusion criteria, out of a total of 4036 visits to the Emergency Medical Services (EMS), representing a frequency of 5.48%. Six patients were HIV-positive, but four records were incomplete, and two patients had died upon arrival (within the first hour). Patients who were not HIV-positive numbered 3809.

The age groups 36–45 years (40.3%) and 46–55 years (23.5%) (Young adults) were the most represented.

The average age was 35 ± 0.9 years, with ages ranging from 16 to 78. There was a predominance of females (n=126) and a sex ratio of 0.75. Patients came from home (62.3%), public health facilities (32.9%), and private health facilities (4.8%). Transport was non-medicalized (95%) or medicalized (5%).

Medical History:

Patients living with HIV (PLHIV) prior to admission (n=176) accounted for 79.6% of the sample. Among them, 60.8% (n=107) were non-compliant with antiretroviral therapy (ART), and 22.2% (n=39) were non-compliant with cotrimoxazole prophylaxis (PST). Herbal concoctions were used as a substitute for ARV and PST in 112 patients, while 34 others resorted to prayer centers. HIV positivity was discovered in 123/176 cases during health checkups organized by their workplaces. Hypertension was identified in 3 former tuberculosis patients. Single individuals (43.43%) were the most infected, followed by married (26.69%) and divorced patients (22.17%).

Reasons for Admission:

The primary symptoms at admission were altered consciousness (45.2%), respiratory distress (24.4%), and diarrhea (11.8%), followed by fever (5.9%), anemia (5.43%), seizures (4.97%), and hemoptysis (1.81%).

Diagnoses:

Most patients (n=64) presented with radiological evidence suggesting cerebral abscesses (cerebral toxoplasmosis), with favorable outcomes after five days of cotrimoxazole treatment. Other pathologies included bacterial pneumonia (22.17%) and pulmonary tuberculosis (15.83%).

Analytical Results:

Patients with CD4 counts < 200 (OR= 0.4003; CI= 0.1875–0.8135; p=0.007706) and WHO stage > 2 (R= 0.38; OR= 0.1934–0.7611; p= 0.0036) had poorer outcomes.

According to the diagnoses, there was no statistical association between the deceased and surviving groups for tuberculosis, cerebral abscess, non-tuberculous bacterial pneumonia (p=1), renal failure (p=0.4824), or anemia (p=1). However, cerebral toxoplasmosis and gastroenteritis were associated with death. Regarding reasons for admission, respiratory distress and neurological deterioration were linked to mortality. The average length of stay was 4 ± 2 days, with a median of 3 days (range: 1–9 days).

Patient Outcomes:

Sixty-two (n=62) patients (28.05%) were discharged home, while 100 (45.25%) were hospitalized in departments such as infectious diseases, internal medicine, and pneumology at the CHU of Treichville. The mortality rate was 26.7% (n=59), reaching 76.27% (n=45) among PLHIV before their admission to EMS.

Study Limitations:

This was a single-center study conducted over a short period, which does not reflect the factors associated with mortality among PLHIV across Côte d'Ivoire. Not all AIDS-defining events, as classified by the Centers for Disease Control and Prevention in 1993, were considered in the EMS setting. Additionally, the impact of comorbidities (hypertension, diabetes, tobacco, alcohol) on clinical outcomes was not addressed in this study.

Author Contributions:

All authors contributed to conducting the research and have read and approved the final version of the manuscript.

Conflicts of Interest: The authors declared no conflicts of interest.

DISCUSSION

Our Sample focused on 221 Patient records admitted to the Emergency Medical Services (EMS):

Seniority of HIV, ARV Treatment, and non-Adherence:

Most patients (79.60%) were already aware of their HIV status, while 20.40% were diagnosed during their stay in the EMS (Table 1). The pathophysiology of HIV progresses over time, leading to decreased immunity and an increased risk of complications in individuals infected years earlier. Our results were higher than those reported by Kone [6] at the Bouake University Hospital Emergency Department, where 49.2% of patients were PLHIV and 42.2% were infected with HIV (screening in the emergency room).

Table 1: Epidemiological Data and Medical History of HIV-Positive Patients

Variables	Numbers	Pourcentage (%)
Sex M/F	95/126	43/57
Age(years)		
16-25	15	6,8
26-35	30	13,6
36-45	89	40,3
46-55	53	23,98
56-65	20	9,1
> 66	14	6,3

Marital status		
Single	96	43,43
Married	59	26,69
Divorced	49	22,17
Widowed	17	7,69
Known HIV History	**176**	79,6
Pulmonary Tuberculosis	10	
Intercostal shingles	03	
Cerebral Toxoplasmosis	03	
Kaposi's Sarcoma	01	
Diabetes	05	
Hypertension	11	
Asthma	01	
Alcohol	01	
Smohing	03	
Anémia + Fever	18	
Unknown HIV History	**45**	20,36
Diabetes	02	
Hypertension	13	
Prostate Adénocarcinoma	01	
Asthma	03	
Alcohol	02	
Smoking	05	
No history	18	

M: male F : female

Reported adherence to ART was low in our study (39.20%) compared with the results of Mbopi-Kéou [7] in Cameroon and Coulibaly [8] in Mali, with adherence rates of 80.2% and 75.2% respectively. Although the factors limiting good adherence to ARV in these studies were dominated by forgetfulness, refusal and adverse effects, the frequent use of traditional medicine explained, in addition to these factors, the more marked non-adherence in our study. Most of our patients did not attend school and preferred the traditional treatments of street vendors. Nowadays, these vendors are numerous and use every means to attract customers while denigrating ARV treatment.

On the other hand, most of our patients were receiving cotrimoxazole prophylaxis (77.80%), similar to the results of Gourvellec [9] in 2004, with an overall compliance rate of 77%. However, compliance was considered to be good and stable. The beneficial effect of cotrimoxazole chemoprophylaxis on the quality of life (prevention of opportunistic infections) of PLHIV is well established [10].

CD4 Counts:

Patients with CD4 counts below 200 cells/mm³ were the most represented group (61.5%) (Table 2). This proportion aligns with findings from Avakougjo in Senegal [11], who reported 57.14% of patients with CD4 < 200/mm³. Similarly, Albus *et al*. [12] in Guinea reported that 57% of their 401-patient cohort had a median CD4 count of 64 cells/mm³ upon admission. Profound immunosuppression at this stage of the disease explains the high frequency of observed complications [13].

Table 2: Paraclinical and Clinical Data and Length of Stay

Variables	Numbers²	Perrcentage (%)
WHO clinical stage		
WHO 0	12	5,4
WHO 1	20	9
WHO 2	72	32,6
WHO 3	55	24,9
WHO 4	62	28,1
CD4 count		
≥ 500	7	3,2
200-499	78	35,3
< 200	136	61,5
Gen Xpert		
Positive / Negative	35 /186	15,8 / 84,2
Glasgow Score		
≤ 8	32	14,47

9-10	67	30,31
11-14	29	13,12
15	93	42,08
Clinical Diagnosis		
AIDS defining conditions		
- Cerebral Toxoplasmosis	64	28,95
- Pulmonary Tuberculosis	35	15,83
- Neuromeningeal cryptococcosis	24	10,86
non -AIDS -defining conditions		
-Bacterial pneumonia	49	22,17
-Renal failure	25	11,31
- Bacterial Gastroenteritis	24	10,86
Length of stay in EMS		
1 Day	5	2,26
1-7 Days	215	97,28
8 Days	1	0,45

Length of Stay:

The average length of stay was 4 ± 2 days, which is significantly shorter than that found in other studies. This discrepancy may be due to the nature of the EMS setting, where patients either experience early death due to critical conditions or are quickly transferred to specialized departments.

Outcomes and Prognosis:

The mortality rate in our series was 27% (n=59). The primary causes of death were cerebral toxoplasmosis (40.6%), pulmonary tuberculosis (13.5%), and cryptococcal meningitis (11.8%). Our results are comparable to those of Kone [6] at the Bouake University Hospital, where the overall mortality rate was 23.8%, with leading fatal infections being acute pneumonia (34.7%), cerebral toxoplasmosis (14.2%), and tuberculosis (14.2%).

However, Albus *et al*. [12] in Guinea reported a higher mortality rate of 36%, with tuberculosis being the leading cause of death in 71% of cases (102 patients). Several factors associated with mortality were identified in our study (Table 3). There was a statistically significant association between respiratory distress (p=0.0000), neurological deterioration (p=0.0038), WHO stage (p=0.0036), cerebral toxoplasmosis (p=0.00602), gastroenteritis (p=0.00264), length of stay >1–8 days, and CD4 count <200 (p=0.007706).

Table 3: Predictive Factors for Early Death in HIV Patients with Complications

Variables	Deceased n (%)	Alive n (%)	OR	CI	P
Age					
Age ≤ 46 years	41(30,60%)	93(69,90%)	1,866	0,2885-	0,12062
Age > 46 years	18(20,69%)	69(79,31%)		1,923	
CD4 (/mm3)					
>200	14 (16,47)	71 (83,53)	0,4003	0,1875-0,8135	0,0077∗
< 200	45 (33,09)	91(66,01%)		0,1934 -0,7611	
WHO stage			0,38		
WHO < 2	18 (17,31)	86(82,69%)			0,0036∗
WHO > 2	41 (35,04)	76(64,96%)			
Progression according to diagnosis					
CeToxoplasmosis					
- Pulm Tuberculosis	24	40			0,00602∗
- Acute Gastroenteritis	8	27			0,67944
- Neuromeningeal cryptococcosis	1	23			0,00264∗
- Acute Renal Failure	7	17			0,8081
					0,4824
	5(20)	20 (80)			
Evolution according to reason for admission					
- Respiratory Distress	32(59,26%)	22(40,70%)			0,0000∗
- Neu deterioration	22(18,49%)	47(81,51%)			0,0038∗

Dist= Distress ; Neu= Neurological ; Ce= cerebral ; Pulm= pulmonary; Toxo= toxoplasmosis ; ARF= Acute Renal Failure

∗ statistical link between the two groups

Table 4: Predictive Factors for Early Death Based on ARV and Cotrimoxazole Adherence

	Deceased n (%)	Alive n (%)	OR	CI	P
ARV Adherence					
Yes	06	63			
No	39	68	0,17	0,05-0,43	0,0001
Cotrimoxazole prophylaxis					
Yes	10	127			
No	35	4	0,09	0,002-0,3	0,0001

Respiratory distress was linked to opportunistic diseases such as pulmonary tuberculosis, pneumocystosis, or toxoplasmosis, often accompanied by coma. In a unit supported by Médecins Sans Frontières (MSF) at Donka National Hospital in Conakry, Guinea, Abdourahimi *et al*. [14] reported an average mortality rate of 33.6%, with tuberculosis (43.8%) and toxoplasmosis (11.4%) being the main causes. Factors associated with death included age (25–49 years: HRa 1.60, p=0.002; ≥50 years: HRa 1.80, p<0.001), respiratory symptoms (HRa 1.23, p=0.001), abdominal symptoms (HRa 1.26, p<0.001), and readmission (HRa 0.54, p<0.001) [13].

Ditondo [15] in Kinshasa, DRC, found tuberculosis (28.5%) and cryptococcosis (24.7%) to be the primary opportunistic infections among patients with advanced HIV.

A systematic review [16] based on 12 studies from various African countries (e.g., Nigeria, Uganda, South Africa, Gabon, Ethiopia, Ghana, and Burkina Faso) identified tuberculosis, anemia, and toxoplasmosis as the leading causes of hospitalization (40.7%, 34.2%, and 29.3%, respectively). Tuberculosis, anemia, and meningitis were the main causes of death (44.3%, 30.2%, and 28.6%, respectively).

HIV-associated opportunistic infections remain potentially fatal, particularly in individuals with CD4 counts below 200 cells/mm³. Traditional medicine further exacerbates immunosuppression in patients who refuse ARV. Hepatorenal complications from traditional medicine also necessitate dosage adjustments, leading to underdosing or discontinuation of specific treatments. Strengthening therapeutic education, psychosocial support for ARV patients, and addressing stock shortages are essential. Free ARV alone cannot solve the issue of non-adherence.

CONCLUSION

Early death occurs among young adults living with HIV. The high mortality rate underscores the need to establish voluntary testing centers nationwide and support PLHIV through enhanced awareness campaigns in local languages.

Conflicts of Interest: None.

REFERENCES

1. ONUSIDA. Statistiques mondiales sur le VIH. Fiche d'information. Journée Mondiale du SIDA 2023. [Online] https://www.unaids.org/fr/resources/fact-sheet Consulté en janvier 2024
2. Chandra A, Firth J, Sheikh A, Patel P. Emergencies related to HIV infection and treatment (part 1). African Journal of Emergency Medicine. 2013 September; 3: 142–9.
3. Kra O, Aba YT, Yao KH, Ouattara B, Abouo F, Tanon KA, et al. Profil clinico- biologique, thérapeutique et évolutif des patients infectés par le VIH hospitalisés au service des maladies infectieuses et tropicales d'Abidjan (Côte d'Ivoire). Bulletin de la Société de pathologie exotique. 2012 June ;106 : 37–42
4. Tanon A, Eholié SP, Binan Y, Ehui E, Zana E, Maurice C, et al. Urgences médicales liées au VIH/SIDA en zone tropicale: étude prospective en Côte d'Ivoire, 1999-2000. Medicine Tropicale.2006; 66:162-6.
5. World Health Organization. (2007). WHO case definitions of HIV for surveillance and revised clinical staging and immunological classification of HIV-related disease in adults and children. World Health Organization. https://iris.who.int/handle/10665/43699 . Consulté le 05/12/2023
6. Kone D, Kone S, Kadiané-Oussou J, Yapo MT, Karidioula JM et al. Morbidité et Mortalité Dues aux Maladies Infectieuses chez l'Adulte aux urgences Médicales du Centre Hospitalier Universitaire de Bouake (Côte d'Ivoire). Health Sci. Dis: Vol 24 (7) July 2023 pp 6-12.
7. Mbopi-Kéou FX, Dempouo Djomassi L, Monebenimp F. Etude des facteurs liés à l'observance au traitement antirétroviral chez les patients suivis à l'Unité de Prise En Charge du VIH/SIDA de l'Hôpital de District de Dschang, Cameroun [Study of factors related to adherence to antiretroviral therapy among patients followed at HIV/AIDS Unit in the District Hospital of Dschang, Cameroon]. Pan Afr Med J. 2012; 12:55. French. Epub 2012 Jun 29. PMID: 22937195; PMCID: PMC3428175.
8. Coulibaly Y., Diarra NM., Sangho F., Bougoudogo F., Diallo D. Facteurs liés à l'observance du traitement Antirétroviral (TARV) à l'Unité de soins et d'accompagnements et de Conseils (USAC) de

Koulikoro. MALI SANTE PUBLIQUE (MSP) 2014 tome IV n° 001& 002 p 48-52.

9. Aoussi EF, Tanon KA, Ehui E, Ouattara SI, Inwoley KA, Adou-Bryn KD, Eholié SP, Bissagnéné E. Paludisme et infection à VIH en Afrique subsaharienne : encore un couple maudit ? Sante 2011 ; 21 : 174-177. doi : 10.1684/san.2011.0255
10. G. Gourvellec, X. Anglaret, S. Touré, C. Huët, N. Dakoury-Dogbo, S. Lafont, T. N'Dri-Yoman, G. Chêne, R. Salamon. Observance chez les adultes infectés par le VIH : Étude d'une prophylaxie des infections opportunistes par le cotrimoxazole en Côte d'Ivoire. La Presse Médicale, Volume 33, Issue 9, Part 1, 2004, Pages 595-600. https://doi.org/10.1016/S0755-4982(04)98683-6.
11. Avakoudjo JDG, Poda GEA, Otiobanda FG, Tendeng J, Dieng A, Sy O et al. Chirurgie et VIH en zone rurale tropicale: expérience de l'hôpital régional de Saint Louis du Sénégal. Médecine d'Afrique noire, 2012 ; 59(1).
12. Albus SL, Harrison RE, Moudachirou R, Nanan-N'Zeth K, Haba B, Casas EC, Isaakidis P, Diallo A, Camara I, Doumbuya M, Sako FB, Cisse M. Poor outcomes among critically ill HIV-positive patients at hospital discharge and post-discharge in Guinea, Conakry: A retrospective cohort study. PLoS One. 2023 Mar 13;18(3):e0281425. doi:10.1371/journal.pone.0281425. PMID: 36913379; PMCID: PMC10010544.
13. T. de Broucker. Complications neurologiques de l'infection par le virus de l'immunodéficience humaine (VIH). Pratique Neurologique - FMC, Volume 4, Issue 4, 2013.Pages 213-228. https://doi.org/10.1016/j.praneu.2013.10.002.
14. Abdourahimi D, Yehadji D, Briskin E, Khine EM, Arias C, André KS, Mukebela FK, Ndayisenga L, Isaakidis P, Casas EC, Steele SJ, Sacko FB, Foromo G. Facteurs associés à la létalité chez les patients hospitalisés pour le VIH avancé. Public Health Action. 2023 Aug 1;13(2 Suppl 1):19-24. French. doi: 10.5588/pha.23.0009. PMID: 37529554; PMCID: PMC10380417.
15. Ditondo P, Luemba A, Chuy RI, Mucinya G, Ade S. Contribution des diagnostics au points de service dans l'identification de la maladie à VIH avancée. Public Health Action. 2023 Aug 1;13(2 Suppl 1):7-12. French. doi: 10.5588/pha.23.0005. PMID: 37529556; PMCID: PMC10380412.
16. Ghislain MR, Mushebenge GA, Magula N. Cause of hospitalization and death in the antiretroviral era in Sub-Saharan Africa published 2008-2018: A systematic review. Medicine (Baltimore). 2021 Oct 29;100(43):e27342. doi: 10.1097/MD.0000000000027342. PMID: 34713822; PMCID: PMC8556022.

Cite this article: Ango Privat Désiré, Kouamé Antoine, Kouakou Affoué Gisèle, Koné Kadidia, Kouassi Jean, Sai Sontia Servais, Kouamé Koffi Isidore (2025). Analysis of Early Deaths among HIV Patients Admitted to the Medical Emergency Department of CHU Treichville in Abidjan (Côte d'Ivoire). *EAS J Anesthesiol Crit Care, 7*(3), 53-59.