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Multidimensional characterization of erectile dysfunction in young man living with HIV: a cross-sectional study

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Introduction

- Erectile dysfunction (ED) is a prevalent concern among young men living with HIV (yMLWH) [1,2].
- We conducted a cross-sectional study to comprehensively characterize ED in yMLWH, considering metabolic, hormonal, vascular, and psychological factors.

Methods

- This is a monocentric cross-sectional study in which we enrolled yMLWH attending our Unit of Infectious Diseases in Brescia.
- Inclusion criteria were a HIV-infection and age between 18 and 50 years old.
- All yMLWH from June 2023 to December 2023 were asked for symptoms of ED during the routinary follow up visits.
- In case of referred ED, the severity and its psychological aspects were assessed using the International Index of Erectile Function-5 (IIEF-5) and the Structured Interview on Erectile Dysfunction (SIEDY) [3].
- Metabolic and hormonal assays were performed, and the Score2 was used to assess the cardiovascular risk.
- Additionally, a dynamic penile color-doppler echography (dpCDE) performed by an Endocrinology and Andrology Specialist was employed to evaluate functional and structural vascular issues contributing to ED.

Results

- In the study period, 310 yMLWH were assessed for eligibility, 50 (50/310, 16.1%) reported ED and were enrolled with a median age of 45.5 (range 29-50) years old, a median Body Mass Index of 25.5 (range 17.7-39.1), and a median Score2 of 2.5% (range 1%-5.5%).
- Comorbidities were absent in 32 (64%) yMLWH, while 8 (16%) and 9 (18%) were receiving treatment for arterial hypertension and dyslipidemia, respectively.
- All yMLWH were virologically suppressed with a median CD4/CD8 ratio of 0.75 (range 0.27-2.23).
- Twenty-four (48%) taking a dolutegravir-based dual regimen.
- According to the IIEF-5, severe ED was observed in 14 yMLWH (28%), while 35 (70%) were identified with a psychological etiology for their ED based on the SIEDY scale 3.
- As regards dpCDE, 17 (34%) yMLWH exhibit a suboptimal/delayed R-ICI (response to intracavernous injection).
- Evaluation of penile artery flow indicated that 15 (30%) yMLWH had frankly pathological peak systolic velocity (PSV) values bilaterally or unilaterally, reaching 28 (46%) with age-related PSV pathological scores.
- As regards structural vascular abnormalities, 43 (86%) yMLWH exhibit elevated intima-media thickness (IMT) bilaterally or unilaterally, and 30 (60%) display at least one significant arterial anastomosis that could contribute to erectile potency reduction.

Conclusion

- ED in YMLWH has a multifactorial etiology [4].
- No ED was solely explained based on hormonal levels, rather, substantial functional or structural vascular alterations were observed in nearly all enrolled yMLWH.
- Clinicians should recognize that relying solely on validated questionnaires to assess erectile dysfunction in yMLWH may obscure early signs of vascular impairment.
- Given the potential predictive value of ED for major cardiovascular events within specific populations, all yMLWH were instructed to undergo a carotid artery echocardiogram and treadmill test.

Figure 1 **Demographic features and comorbidities of the included yMLWH**

Demographic	
➢ Age (years), median (range)	45.5 (29-50)
➢ BMI (Kg/m2), median (range)	25.5 (17.7-39.1)
➢ PAS (mmHg), median (range)	120 (95-160)
➢ PAD (mmHg), median (range)	80 (60-105)
➢ IIEF-5 score, median (range)	15 (5-25)
Comorbidities	
➢ Hypertension, n (%)	10 (20)
➢ Previous cardiovascular events, n (%)	2 (4)
➢ Neuro-pelvic disease, n (%)	4 (8)
➢ Diabetes, n (%)	4 (8)
➢ Familiarity for cardiovascular events, n (%)	4 (8)
➢ IRC, n (%)	2 (4)
➢ Rheumatoid arthritis, n (%)	1 (2)
➢ Psychiatric diseases, n (%)	8 (16)
➢ Anti-hypertensive therapy, n (%)	8 (16)
➢ Hypocholesterolemic agents, n (%)	9 (18)

Figure 2 **Dynamic penile color-doppler echography (dpCDE)**

Dynamic markers	
➢ Drug response, median (range)	60% (40-90)
➢ Peak systolic velocity (left), median (range)	49.5 cm/s (18-100)
➢ Peak systolic velocity (right), median (range)	46 cm/s (12-100)
➢ End dyastolic velocity (right), median (range)	4.5 cm/s (0-12)
➢ End dyastolic velocity (left), median (range)	4.5 cm/s (0-12)
➢ Intima-media thickness (right), median (range)	0.3 mm (0-2-0.5)
➢ Intima-media thickness (left), median (range)	0.3 mm (0.2-0.5)
Morphology markers	
➢ Caverno-cavernous anastomosis, n (%)	14 (28)
➢ Dorsal-cavernous anastomosis, n (%)	24 (48)
➢ Accessory cavernous arteries, n (%)	5 (10)
➢ Penile plaques, n (%)	2 (4)

References

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