

Sexual Dysfunctions

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1. Introduction

Although HIV-positive individuals kept a central role in the maintenance of the epidemic, only from the 12th World AIDS Conference, held in Geneva in 1998, the sexuality of people living with HIV/AIDS received more systematic attention (Schiltz and Sandfort 2000). After receiving the diagnosis of HIV infection is common for people to become involved in a state of negative mood and decrease the frequency of sexual activity and those who remain with sexual practices most likely do so without adequate protection (Rosser, Gobby and Carr 1999). The adhesion to safe sex practices after diagnosis of HIV infection may have a negative impact on sexual functioning of most subjects (Newshan, Taylor and Gold 1998). The individuals that have partnership are significantly more likely to maintain sexual activity than those without (Stein et al. 2005). On the professionals, the sexual functioning is often overlooked among the care of HIV positive patients. Generally, information about the relationship between hormonal factors, psychological factors, drug effects, disease stage, and sexual functioning are not spoken by health professionals (Newshan et al. 1998). In addition, one must consider that individuals who acquire HIV through sexual or parenteral (excluding blood transfusions) are already part of a population at higher risk for sexual dysfunction, as many risk factors for HIV are also to the occurrence of sexual dysfunction, such as conflicts with the orientation or sexual identity, depression, and psychological problems related to self-image (Hijazi, Nandwani and Kell 2002).

Several factors may modify the sexual response. Beginning in youth, sexual dysfunctions are highly prevalent in all age groups. Symptoms of sexual dysfunction include erectile dysfunction, loss of libido, premature or delayed ejaculation, orgasmic disturbances, arousal difficulties, and dyspareunia, among others (Lewis et al. 2004).

For the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision (DSM-IV-TR) ((APA) 2000), the fundamental concepts of the principals sexual dysfunctions are: *Dyspareunia* is recurrent or persistent genital pain associated with sexual intercourse in men or women. *Female orgasmic disorder* is the delay of orgasm following normal excitement and sexual activity. Due to the widely varied sexual response in women, it must be judged by a clinician to be significant taking into account the person's age and situation. *Female sexual arousal disorder* is inability to attain or maintain until completion of sexual activity adequate lubrication in response to sexual excitement. *Hypoactive sexual desire disorder* is deficient or absent sexual fantasies and desire for sexual activity. This judgment must be made by a clinician taking into account the individual's age and life circumstances. *Male erectile disorder (impotence)* is recurring inability to achieve or maintain an erection until

completion of the sexual activity. *Male orgasmic disorder* is delay or absence of orgasm following normal excitement and sexual activity. Due to the widely varied sexual response in men, it must be judged by a clinician to be significant, taking into account the person's age and situation. *Premature ejaculation* is the ejaculation with minimal sexual stimulation before or shortly after penetration and before the person wishes it. The condition is persistent or occurs frequently and causes significant distress (APA, 2000).

Factors such as lack of ability, poor sex education, and psychological conflicts play an important role in the development of sexual dysfunction at the start of sexual activity (Lewis et al. 2004). Life habits and morbid conditions become important risk factors for sexual dysfunction during aging; these factors include hypertension, diabetes, depression, heart disease, sex hormone deficiency, smoking, sedentary life style, and drug addiction (Moreira et al. 2001). Socioeconomic factors, such as education, employment and marital status, have also been related to sexual difficulties (Nicolosi et al. 2003).

Highly active antiretroviral therapy (HAART) has previously been shown to provide the best clinical management for HIV-infected patients, as it decreases the prevalence of hypogonadism and advanced HIV disease, which are principal causes of sexual dysfunction in people infected with HIV (Danoff 1996, Collazos 2007). However the prevalence on sexual dysfunctions in the HAART years show high rates (Collazos 2007). In this chapter we analyze the etiologic factors involved on sexual dysfunctions of HIV/AIDS people. We also describe the most prevalent sexual dysfunctions in males, and females. We propose steps for assessment, and diagnosis of the sexual dysfunction in HIV/AIDS people. We talk about the principal therapeutic strategies for recover healthy sexual function of this people. Finally, we comment on the prognostic factors.

2. Epidemiology

The prevalence rates of sexual dysfunctions in HIV/AIDS patients were reviewed: 46% presented with erectile dysfunction (range 9-74%), 39% with ejaculatory disturbances (range 36-42%), 44% with decreased libido (range 24-73%), and 27% with orgasmic disorders (range 7-49%). The high interval of range is because so much different designs and methods used in the HIV sexual dysfunctions studies (Collazos 2007). There are differences on the most prevalent sexual dysfunctions among men, and women.

The most prevalent female sexual dysfunctions are low sexual desire, orgasmic dysfunction, and dyspareunia (Hijazi et al. 2002, Luzi et al. 2009). A higher frequency (36%) of sexual inactivity during the last 12 months in female with AIDS has been reported by a Brazilian study (de Tubino Scanavino and Abdo 2010), which is in according with another study of females with HIV/AIDS, of which 28% reported having no sexual partners for an average of 69 months (Lambert, Keegan and Petrak 2005). We already know that HIV/AIDS females that has partners keep more the sexual activity than who does not have. But in the Brazilian study the female also does not maintain sexual arousal until the end of the sex, and probably this may partly explain the sexual inactivity because these women seem to find sex unsatisfactory (de Tubino Scanavino and Abdo 2010).

On men infected by HIV the most prevalent sexual dysfunctions are erectile dysfunction and premature ejaculation. In Brazil, a case-control study nested in a cross-sectional population study with people who reported AIDS found that almost 50% of the male reported ejaculatory symptoms, and 33% of the men living with AIDS reported erectile dysfunction (de Tubino Scanavino and Abdo 2010). In this study 12% of men with AIDS also

reported dyspareunia, while no men without AIDS reported it (de Tubino Scanavino and Abdo 2010). Male dyspareunia is not commonly reported in the literature, possibly because it is not regularly investigated in studies of male sexual function.

3. Etiology

There are four important factors associated with sexual dysfunctions in HIV/AIDS patients: mental, hormonal, pharmacological, and other morbid conditions.

3.1 Mental factors

At the first moment, the condition of being HIV seropositive may cause feelings of loss of sexual attractiveness, reduction of sexual desire and sexual satisfaction. Moreover, they may be confronted with the absence of sexual partners, particularly when revealing their serological status. In addition, the sexual response may be undermined by fear or guilt in coming to contaminate partnerships (Newshan et al. 1998, Schiltz and Sandfort 2000).

A representative French study with HIV outpatients showed association among sexual difficulties and the discrimination by friends and partners, suffering by lipodystrophy, very disturbing HIV related symptoms. The authors recommend psychological support for HIV experience for improves the sexual life (Bouhnik et al. 2008). Feelings of guilt by have acquiring the HIV on sexual transmission may become a psychogenic factor and influence negatively the sexual response. Maybe because of this point, sexual dysfunctions are more prevalent on homosexual men than intravenous drug users (Sollima et al. 2001). In fact, gay and bisexual men have higher rates of sexual dysfunctions (Catalan and Meadows 2000) or just complaint more to the physicians on the disorder due to valorize more the sexual function than others.

Depression is one of the most important mental factors associated with sexual dysfunctions (Ciesla and Roberts 2001). A study on 300 HIV infected men found the older age and depression were associated with erectile dysfunction, and current higher CD4 account was protective (Crum-Cianflone et al. 2007).

The most common factors associated with female sexual dysfunction are the psychosocial aspects of HIV infection and the negative body image associated with use of medications that cause lipodystrophy (Bell et al. 2006, Hijazi et al. 2002, Luzi et al. 2009).

3.2 Hormonal factors

Hypogonadism was one of the most frequent causes of sexual dysfunction before HAART. Currently, HIV infected individuals may have testosterone levels higher than non infected individuals. Moreover, estradiol is often higher in men (50% of them) on HAART possibly because the augmentation of the peripheral conversion of the androgens to estrogens in lipid tissues (Bell et al. 2006, Goldmeier et al. 2002). But the role of estradiol in HIV sexual dysfunctions is not clear. The expected decrease in blood of the gonadotropin hormones was not confirmed (Collazos et al. 2002a), and one study observed improving on sexual function despite higher blood levels of estradiol (Collazos et al. 2002b). On the other side, an study on rabbits found estrogen receptors in cavernous body, and found pathophysiological changes in erectile function when rabbits are under continuous estrogen intake (Srilatha and Adaikan 2004). Another study with older men found that the balance between testosterone

(decreased) and oestradiol (higher) are associated with erectile dysfunction (Srilatha, Adaikan and Chong 2007).

Hyperprolactinemia may be associated with sexual dysfunction as it decreases the gonadotropin releases and have been found in part of the HIV individuals, but one study does not found difference in prolactin levels between patients with and without sexual difficulties (Collazos et al. 2002b).

3.3 Pharmacological factors

HAART era shows high rates of sexual dysfunction despite the improvement of health conditions. Anecdotal report from studies suggest association among protease inhibitors and sexual dysfunctions, but just a few studies found a kind of evidence on it. These studies have found a possible effect on testosterone receptor by protease inhibitors (Yang et al. 2005, Baker, Vaughn and Fanestil 1978). Other evidences to explain sexual dysfunction by an effect of HAART are scarce. Future studies on pharmacological issues may specify the etiologic role of antiretrovirals to sexual dysfunction.

It has been reported ejaculatory dysfunction associated by use of didanosine (Hijazi et al. 2002). The neuropathy is a possible complication by use of some antiretrovirals and may be a sexual dysfunction factor for some patients (Rogstad et al. 1999).

However, HIV infected individuals use a lot of other medications that are associated with decrease on sexual response. Medications such as ketoconazole, fluconazole, ganciclovir, megestrol, methadone and cimetidine may decrease the level of testosterone and cause sexual dysfunction (Newshan et al. 1998, Daniell 2002). Antihypertensives, diuretics, hypolipemics, benzodiazepines, antidepressants, and antipsychotics are also associated with sexual dysfunctions (Asboe et al. 2007, Lue 2000, Daniell 2002, Bruckert et al. 1996).

3.4 Comorbid conditions

Some morbid conditions are common in HIV people and some of them are often associated with sexual dysfunction as hepatothopathy, diabetes, hyperlipidemia, hypertension, vascular disease, alcohol dependence (Moreira et al. 2001).

4. Diagnosis

When a patient comes for receiving care on sexual function, he needs time and more than one meeting with the health professional, to bind and reveal your intimate life problems.

But if a patient seeks medical care for other reasons but also has sexual problems, difficultly he will talk about spontaneously. Moreover, sexual life is poorly investigated by practitioners, indeed in mental health settings. It also occurs on HIV/AIDS clinical context. In a research in the United Kingdom on HIV clinics, 60% of the physicians do not ask on sexual functioning of female HIV infected (Bell et al. 2006) despite the sexual difficulties are very prevalent on HIV women.

For this reason, in order to investigate sexual function of HIV people, the first point to consider is an appropriate doctor patient relationship (Lawlor and Braunack-Mayer 2004), which is basic to investigate clinical and sexual symptoms of the patients. It is important an attitude of open minded and free of judgments by the professional.

The diagnosis of sexual dysfunctions follows some steps for diagnosis: consistent doctor-patient relationship, investigation of clinical history and physical examination, investigation of the sexual life history, assessment on sexual response, and check the hormonal serum levels.

4.1 Clinical history and physical examination

The clinical history comprehends the assessment on the immunological conditions, comorbidities, and medications. Severe immunological damage may indicate AIDS diagnosis. The poor health condition undermines physical and sexual response. Nevertheless, the hypogonadism should be investigated. On the physical examination, the gynecomastia and testicular atrophy may indicate hypogonadism (Rosen et al. 2006). Hypogonadism is defined as low levels of testosterone (< 300 ng/dL) in early morning, with associated clinical manifestations, including sexual dysfunction, weight and muscle mass loss, fatigue, depressed mood, and anemia (Crum et al. 2005).

We already spoke on the most frequent comorbidity and the use of some medications which also influence the sexual response.

4.2 Sexual history

The sexual history should start investigating the concepts on sexuality of the family (father and mother), following to the patient's sexual history, finishing with focus about some specific gender issues.

4.2.1 Sexuality on origin family

When sexuality is very repressed, it could undermine to live a broad experience of sex and love in adolescence and young adult life (Basson 2008), which are fundamental to sexual maturing process. The non psychological and sexual maturing and possible internal conflicts influence the sexual response. When somebody lives in a dysfunctional family in childhood and has early contact with the erotic experience (sexual abuse or permissive family ambience), it could be traumatic and harm the personality development, as the children experience feelings of being unprotected, unsafety, shame or guilt. Then, this person could present sexual problems (aversion, excessive drive, sexual difficulties) later in your life (Noll, Trickett and Putnam 2003).

On sexual violence suffered during childhood and adolescence many studies have reported serious psychological effects and sexual consequences (Gwandure 2007, Greenberg 2001, Whetten et al. 2006). Victims of violence often have a high frequency of the stress post-traumatic disorder, depression, suicidal ideation and low self-esteem (Gwandure 2007) (Greenberg 2001, Whetten et al. 2006). These psychopathological issues are risk factors for HIV / AIDS in adult life, as negative moods promote sexual practices without the use of condoms and, therefore, exposure to virus (Gwandure 2007). Thus, research has documented the association between childhood sexual abuse and higher frequency of sexual risk behavior in adult life (Gwandure 2007, Greenberg 2001, Whetten et al. 2006, Sikkema et al. 2008). At the same time, in several studies of HIV-positive individuals is described childhood sexual abuse, which frequency varies between 24% and 76% (Whetten et al. 2006, Bedimo, Kissinger and Bessinger 1997, Kalichman et al. 2002, Liebschutz et al. 2000, Segurado et al. 2008).

4.2.2 Own sexual history

The own sexual history is very important. The first sexual experiences with boys or girls, the first complete sexual relationship, the exercise of masturbation are all significant steps in sexual maturing process, which comprehend gaining knowledge on your body (erogenous zones) and of the others. When somebody has sexual difficulties in early sexual experiences and are not prepared to deal with, it could promote negative attitude regarding sex, and new experiences will be avoided, undermining the sexual maturing (Lewis et al. 2004). A person with sexual inexperience is under higher risk for sexual dysfunction (Lewis et al. 2004), and, in turn, a person with sexual dysfunction is under higher risk for unsafe sex behavior (Rosen et al. 2006), even if become infected by HIV.

4.2.3 Gender issues

Some specific gender issues are also important to be investigated. For men, homosexual orientation presents a special vulnerability for sexual dysfunction, maybe because the process to accept the sexual orientation, the difficulties to deal with low acceptance by family and society, and the problems with gender identity (Coleman, Rosser and Strapko 1992). Some studies have reported higher rates of sexual dysfunction in HIV infected men who have sex with men (Cove and Petrak 2004).

For women, the mental health is a strong point to be investigated. Depression is a strong risk factor for sexual dysfunction (Cyranski et al. 2004) and when treated can improve substantially the sexual dysfunction symptoms (Clayton et al. 2007).

Less investigated but so important is self-image and body image. Self-image comprehends the perception from herself of the female issue, and the erotic issue. They are steps of sexual developing and are determinant to woman feels secure to engage in sexual experiences in adult life. The prejudice on body image by lipodystrophy has been considered the most important factor for sexual dysfunction in HIV infected women (Luzi et al. 2009) and could also influence to women do not engage in sex with partners.

Another important point on female sexual function is the presence of positive feelings for the partner (Basson 2008) and the sexual partner ability, as we know a lot of women just have positive sexual experiences when they are stimulated by a partner in an appropriate context, which involve affect and foreplay (Basson 2008).

4.2.4 Difference between organic and psychogenic sexual dysfunction

It is also relevant in sexual history to distinguish between characteristics of organic or psychogenic sexual dysfunction (Table 1) (Speckens et al. 1993, Hatch, de la Peña and Fisher 1987). The psychogenic occurs more often in younger individuals, the onset is rapid, it could be related with adverse life events (when it appears soon after HIV diagnosis, e.g.) or problematic onset sex lives, the presentation is not constant and it changes depending on the partners, or the situations, and could not be presented in masturbation. Moreover, the organic occurs more often in older men, the onset is insidious, it does not have relation with life adverse events, the presentation is constant, and it also occurs in masturbation. For men, when the nocturnal penile erection is present it is suggestive of psychogenic etiology. Considering HIV infection we could think that individuals just seropositive with good health conditions probably presents sexual dysfunction by psychogenic etiology, and individuals with poor immunological conditions or AIDS diagnosis probably presents sexual dysfunction by organic factors.

Characteristics	Organic	Psychogenic
Age of onset	Older	Younger
Onset	Insidious	Quick
Pattern	Constant	Variable
Masturbation	Yes	No
Adverse life events and/or problems on the onset of sex life	No	Yes
Men: penile nocturnal Erection	No	Yes

Table 1. Clinical difference between organic and psychogenic sexual dysfunction

4.3 Assessment on sexual response

Some standardized instruments for quick assessment of sexual response can be used, as the health practitioners often find it difficult to investigate the sex lives of patients. For female we can use The Female Sexual Function Index (FSFI) to assess female sexual function. The FSFI is a self-responsive questionnaire with 19 multiple choice questions divided into six main domains. The questionnaire evaluates phases of the sexual cycle (desire, excitement and orgasm), sexual satisfaction and dyspareunia in the last four weeks (Rosen et al. 2000). For male there is The International Index of Erectile Function (IIEF) which addresses the relevant domains of male sexual function (erectile function, orgasmic function, sexual desire, intercourse satisfaction, and overall satisfaction), is psychometrically tested, readily self-administered in research or clinical settings (Rosen et al. 1997).

The Figure 1 shows generally items for investigating sexual function (de Tubino Scanavino and Abdo 2010).

In general items evaluating sexual function involves the follows (de Tubino Scanavino and Abdo 2010): "Did you have sexual intercourse during the last 12 months?", "Do you need to be stimulated by your partner to begin sexual intercourse?", "Is stimulation (foreplay) necessary for you for a long time before sexual intercourse?", "If there is no previous reciprocal stimulation (foreplay), do you and your partner proceed to genital sexual intercourse?", "Do you masturbate regularly?", "Do you usually have sexual desire?", "Do you feel pain during sexual intercourse?". Items evaluating female sexual function involves the follows: "When you kiss and hug during sexual intercourse, do you feel sexual arousal and does the vagina become wet?", "Do you maintain sexual arousal and a wet vagina until the end of sexual intercourse?", "Do you reach orgasm during sexual activity (inside the vagina or outside on the clitoris)?" . Items evaluating male sexual function involves the follows: "Do you feel the pleasure of getting an erection and keeping it until the end of sexual intercourse?", "Do you always manage to maintain an erection (hard penis) until the end of sexual intercourse?", "Do you ejaculate (expel white liquid through the penis) quicker than you want?", "Do you ejaculate (expel white liquid through the penis) later than you want?", "Do you ejaculate (expel white liquid through the penis) at the desired time for you?" .

Items for men and women	"Did you have sexual intercourse during the last 12 months?", "Do you need to be stimulated by your partner to begin sexual intercourse?", "Is stimulation (foreplay) necessary for you for a long time before sexual intercourse?", "If there is no previous reciprocal stimulation (foreplay), do you and your partner proceed to genital sexual intercourse?", "Do you masturbate regularly?", "Do you usually have sexual desire?", "Do you feel pain during sexual intercourse?".
Items specifically for women	"When you kiss and hug during sexual intercourse, do you feel sexual arousal and does the vagina become wet?", "Do you maintain sexual arousal and a wet vagina until the end of sexual intercourse?", "Do you reach orgasm during sexual activity (inside the vagina or outside on the clitoris)?".
Items specifically for men	"Do you feel the pleasure of getting an erection and keeping it until the end of sexual intercourse?", "Do you always manage to maintain an erection (hard penis) until the end of sexual intercourse?", "Do you ejaculate (expel white liquid through the penis) quicker than you want?", "Do you ejaculate (expel white liquid through the penis) later than you want?", "Do you ejaculate (expel white liquid through the penis) at the desired time for you?".

Fig. 1. Items for assessment the sexual function (de Tubino Scanavino and Abdo 2010).

4.4 Laboratory assessment

Laboratory assessment may involve a sexual hormones screening including testosterone, estrogen, estradiol, prolactin, gonadotropin. It is important check the serum free testosterone or the levels of sex hormone-binding globulin because it usually is increased in HIV infected individuals (Hofbauer and Heufelder 1996). When organic etiology is suspected, more profound evaluations can take place, such as Doppler ultrasonography (arterial obstruction) or nerve conduction study (neuropathy).

The Figure 2 summarizes the steps for the diagnosis.

5. Treatment

The treatment of sexual dysfunctions on HIV/AIDS patients involves pharmacotherapy, psychotherapy interventions, and psychoeducational approaches on safer sex.

5.1 Pharmacotherapy

For pharmacological management may be considered the changing of the antiretroviral used, the association of phosphodiesterase-5 inhibitors, testosterone replacement when hypogonadism was diagnosed, and letrozole if estradiol is increased.

1. Consistent doctor-patient relationship			
2. Clinical history and physical examination	Immunological Co-morbidities Hypogonadism		
3. Sexual history	Family	Repression Sexual abuse	
	Own sexual history	The onset Masturbation exercise First complete intercourse	
	Gender issues	Men who have sex with men	Sexual orientation Gender issues
		Women	Mental health Self-image Body image Feelings for the partner Hability of the partner
	Characteristics of the dysfunction	Organic Psychogenic	
4. Assessment on sexual response	Desire Arousal Orgasm Resolution Satisfaction		
5. Laboratory assessment	Hormonal	Testosterone Estradiol Gonadotropin Prolactin Estrogen Sex hormone-binding globulin	
	Metabolic	Carbohydrate Lipid profile	

Fig. 2. Steps for the diagnosis

5.1.1 Antiretrovirals

If medication is the principal factor you can try another drug that has poor influence on sexual response, such as nevirapine (Collazos 2007, Collazos et al. 2002c) or atazanavir (Bernal et al. 2005).

5.1.2 Phosphodiesterase-5 inhibitors

The use of phosphodiesterase-5 inhibitors is highly recommended in male sexual dysfunction, but one should be careful about drug interactions with antiretrovirals, particularly with protease inhibitors (especially ritonavir) because both are metabolized by the cytochrome P-450 system. Because the increases of serum concentration of phosphodiesterase-5 inhibitors when associated with protease inhibitors and cetoconazol, the dosage should be reduced (Merry et al. 1999, Rosen et al. 2006). The phosphodiesterase-5 inhibitors most often used are sildenafil, tadalafil and vardenafil.

Poppers (amyl nitrate) are contraindicated by men user of phosphodiesterase-5 inhibitors because lowers blood pressure especially in combination with phosphodiesterase-5 inhibitors.

5.1.3 Testosterone replacement

If the patient reaches the diagnostic criteria for hypogonadism there is some options for testosterone replacement.

On the other side, testosterone replacement is not prescribed for HIV patients without decreases on free testosterone blood levels because does not improve sexual dysfunctions have been reported in this condition, and they will be exposed to the adverse effects (Collazos 2007). Sometimes testosterone replacement could be problematic even to hypogonadal male, as in the report of three HIV infected patients with erectile dysfunction whose present low testosterone and SHBG despite are receiving long-term oxandrolone in addition to testosterone replacement therapy, beyond HAART. Discontinuation of oxandrolone led to the normalization or improvement of testosterone levels in all three patients with symptomatic improvement in one patient. The authors hypothesized the first pass metabolism of orally administered oxandrolone may decrease hepatic synthesis of SHBG, allowing exogenously supplied testosterone to be excreted (Wasserman, Segal-Maurer and Rubin 2008).

By the way, the testosterone replacement shows good results in sexual dysfunction of most of hypogonadal HIV infected individuals (Cofrancesco, Whalen and Dobs 1997, Rabkin, Rabkin and Wagner 1997, Rabkin, Wagner and Rabkin 1999, Rabkin, Wagner and Rabkin 2000, Seftel et al. 2004) and the replacement by testosterone gel topic shows good benefits (Schrader et al. 2005).

5.1.4 Letrozole

Finally, some improvement in sexual desire has been reported in a few patients on HAART who were treated with letrozole, an aromatase inhibitor that inhibits the conversion of testosterone to estradiol. Thirteen men who have sex with men on HAART with low sexual desire as well as raised estradiol levels were randomly allocated to receive either parenteral testosterone or letrozole for six weeks. Standardized instruments pointed out improvement in desire, and frequency of sexual acts in both treatment arms (Richardson et al. 2007).

5.2 Psychotherapy

The psychotherapeutic approaches on sexual dysfunction of HIV infected people involve supportive, processual, psychosexual, and psychoeducational therapies.

5.2.1 Supportive

If the most important factor is the psychogenic can use supportive therapy in early period after HIV diagnosis. It should foccuses in demystify the stigmas from HIV/AIDS as mortal disease and as associated to non conventional sex behavior. The supportive approach would diminish the fear and guilt.

A structured supportive approach could be necessary for the women who suffered sexual violence could overcoming and retake sexual life.

5.2.2 Processual

People who have severe sexual conflicts because grown in a family with high sexual repression or suffered childhood sexual abuse, a processual approach could be recomended as psychoanalysis.

5.2.3 Psychosexual

Psychosexual therapy such as sensitive focus or masturbation training are indicated when the acceptance of HIV seropositivity is solved and the sexual dysfunctions remains.

5.2.4 Psychoeducational

As most of the population did not receive sexual education, the psychoeducational approach is always useful involving anatomy concepts, the differences between male and female sexual response, e.g.

5.3 Psychoeducational approach on safer sex

Psychoeducational approach on safer sex is offered concomitant with the treatment of the sexual dysfunction. Always the approach involves the patient and his or her partner. Safer sex counseling is fundamental for explaining the risk for contact with different strains of HIV, and favouring the development of the resistance to antiretrovirals.

Finally, psychoeducational approach should stimulate lifestyle modification including safer sex, exercise, recreational drugs information, modifications of cardiovascular risk factors (Rosen et al. 2006).

The Figure 3 summarizes the treatment.

6. Prognosis

The sexual function before HIV diagnosis, the current physical and mental health, and the psychosocial support are important factors to improve sexual response. A medical team updated with knowledge on human sexuality is essential for diagnosis, and treatment of the sexual dysfunctions. When these conditions are preserved the results on therapeutics are good (Wasserman et al. 2008, Richardson et al. 2007, Schrader et al. 2005).

The problem is that in many times the sexual issues are not investigated by health professionals, and just a few of patients will talk about sexual problems spontaneously. As sexual dysfunction is so prevalent in general population and in people living with HIV, a lot of them, keep without caring on sexual difficulties. On addiction, sexual dysfunction has impact on quality of life, very often influencing negative attitudes by the individual, including bad adherence to antiretroviral regimens, and to safer sex strategies (Trotta et al. 2007, Trotta et al. 2008). Moreover, HIV infected people with sexual dysfunction have

Intervention	Problem	Management strategy
1. Pharmacotherapy	Antiretrovirals	Change medication
	Association with Phosphodiesterase-5 inhibitors	Reduce the dosage Does not use with poppers
	Hypogonadism	Testosterone replacement
	Estradiol increased (low sex desire)	Letrozole
2. Psychotherapy	Early period after HIV diagnosis	Supportive therapy
	Women who suffered sexual violence	Supportive therapy
	Severe sexual repression Childhood sexual abuse Dysfunctional family	Psychoanalysis
	Poor sexual education Poor knowledge on human sexuality	Psychoeducational therapy
3. Psychoeducational on safer sex	Poor knowledge on sexual health	Strategies for safer sex to the patient and to the partner

Fig. 3. Interventions

increased risk of transmission of drug-resistant strains because the higher sexual risk behavior, and inadvertent use of phosphodiesterase-5 inhibitors without medical recommendations with higher likelihood of negative interaction with antiretrovirals (Trotta et al. 2007, Trotta et al. 2008).

Another important point is on the scarcity of health professional team with expertise in human sexuality. A so private issue needs professionals with ability to approach on these intimate issues of the patients. Otherwise the patients do not open your sexual problems to them.

When the patient receives attention on your sexual life, he feels valuable, and will be more open to engage in positive ways as on adherence to medications as on safer sex strategies.

7. Conclusion

Sexuality is a very important point to quality of life. A person who becomes infected by HIV particularly by sexual contact could be extremely confused about continuing engaging in sexual intercourses. The consequences mostly are negative attitudes toward life, harm on quality of life, sexual risk behaviors, and bad adherence to antiretrovirals. People who are living with HIV/AIDS are extremely important to epidemia control. Take care of your sexual life may improve your self steam and your protective behaviors.

By the way, the approach on sexual dysfunction in HIV infected people involves multiple variables and includes the assessment on clinical history (morbid conditions, medications), sexual history (family and own), sexual function (male and female), and laboratory studies

(hormonal, metabolic). The management strategies by health professionals with expertise in human sexuality involves pharmacology and psychotherapy interventions. Always the psychoeducational approach on safer sex will be developed in parallel with others interventions. The recovery of the sexual function, associated with a good adherence to safe sex practices, will improve the quality of life of the people living with HIV/AIDS and help controlling the epidemia.

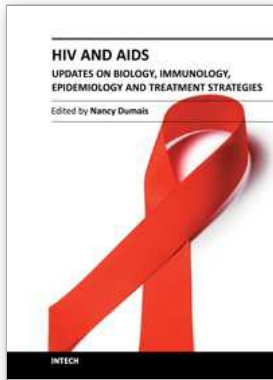
8. References

- American Psychiatric Association (APA) (2000): Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision. Washington, DC: American Psychiatric Association.
- Asboe, D., J. Catalan, S. Mandalia, N. Dedes, E. Florence, W. Schrooten, C. Noestlinger & R. Colebunders (2007) Sexual dysfunction in HIV-positive men is multi-factorial: a study of prevalence and associated factors. *AIDS Care*, 19, 955-65.
- Baker, M. E., D. A. Vaughn & D. D. Fanestil (1978) Inhibition by protease inhibitors of binding of adrenal and sex steroid hormones. *J Supramol Struct*, 9, 421-6.
- Basson, R. (2008) Women's sexual function and dysfunction: current uncertainties, future directions. *Int J Impot Res*, 20, 466-78.
- Bedimo, A. L., P. Kissinger & R. Bessinger (1997) History of sexual abuse among HIV-infected women. *Int J STD AIDS*, 8, 332-5.
- Bell, C., D. Richardson, M. Wall & D. Goldmeier (2006) HIV-associated female sexual dysfunction - clinical experience and literature review. *Int J STD AIDS*, 17, 706-9.
- Bernal, E., M. Masiá, S. Padilla & F. Gutiérrez (2005) Unexpected improvement of sexual dysfunction during atazanavir therapy. *AIDS*, 19, 1440-1.
- Bouhnik, A. D., M. Préau, M. A. Schiltz, Y. Obadia, B. Spire & V. s. group (2008) Sexual difficulties in people living with HIV in France--results from a large representative sample of outpatients attending French hospitals (ANRS-EN12-VESPA). *AIDS Behav*, 12, 670-6.
- Bruckert, E., P. Giral, H. M. Heshmati & G. Turpin (1996) Men treated with hypolipidaemic drugs complain more frequently of erectile dysfunction. *J Clin Pharm Ther*, 21, 89-94.
- Catalan, J. & J. Meadows (2000) Sexual dysfunction in gay and bisexual men with HIV infection: evaluation, treatment and implications. *AIDS Care*, 12, 279-86.
- Ciesla, J. A. & J. E. Roberts (2001) Meta-analysis of the relationship between HIV infection and risk for depressive disorders. *Am J Psychiatry*, 158, 725-30.
- Clayton, A., S. Kornstein, A. Prakash, C. Mallinckrodt & M. Wohlreich (2007) Changes in sexual functioning associated with duloxetine, escitalopram, and placebo in the treatment of patients with major depressive disorder. *J Sex Med*, 4, 917-29.
- Cofrancesco, J., J. J. Whalen & A. S. Dobs (1997) Testosterone replacement treatment options for HIV-infected men. *J Acquir Immune Defic Syndr Hum Retrovirol*, 16, 254-65.
- Coleman, E., B. R. Rosser & N. Strapko (1992) Sexual and intimacy dysfunction among homosexual men and women. *Psychiatr Med*, 10, 257-71.
- Collazos, J. (2007) Sexual dysfunction in the highly active antiretroviral therapy era. *AIDS Rev*, 9, 237-45.
- Collazos, J., E. Martinez, J. Mayo & S. Ibarra (2002a) Sexual hormones in HIV-infected patients: the influence of antiretroviral therapy. *AIDS*, 16, 934-7.

- Collazos, J., E. Martínez, J. Mayo & S. Ibarra (2002b) Sexual dysfunction in HIV-infected patients treated with highly active antiretroviral therapy. *J Acquir Immune Defic Syndr*, 31, 322-6.
- Collazos, J., J. Mayo, E. Martínez & S. Ibarra (2002c) Association between sexual disturbances and sexual hormones with specific antiretroviral drugs. *AIDS*, 16, 1294-5.
- Cove, J. & J. Petrak (2004) Factors associated with sexual problems in HIV-positive gay men. *Int J STD AIDS*, 15, 732-6.
- Crum, N. F., K. J. Furtek, P. E. Olson, C. L. Amling & M. R. Wallace (2005) A review of hypogonadism and erectile dysfunction among HIV-infected men during the pre- and post-HAART eras: diagnosis, pathogenesis, and management. *AIDS Patient Care STDS*, 19, 655-71.
- Crum-Cianflone, N. F., M. Bavaro, B. Hale, C. Amling, A. Truett, C. Brandt, B. Pope, K. Furtek, S. Medina & M. R. Wallace (2007) Erectile dysfunction and hypogonadism among men with HIV. *AIDS Patient Care STDS*, 21, 9-19.
- Cyranowski, J. M., J. Bromberger, A. Youk, K. Matthews, H. M. Kravitz & L. H. Powell (2004) Lifetime depression history and sexual function in women at midlife. *Arch Sex Behav*, 33, 539-48.
- Daniell, H. W. (2002) Hypogonadism in men consuming sustained-action oral opioids. *J Pain*, 3, 377-84.
- Danoff, A. (1996) Endocrinologic complications of HIV infection. *Med Clin North Am*, 80, 1453-69.
- de Tubino Scanavino, M. & C. H. Abdo (2010) Sexual dysfunctions among people living with AIDS in Brazil. *Clinics (Sao Paulo)*, 65, 511-9.
- Goldmeier, D., G. Scullard, M. Kapembwa, H. Lamba & G. Frize (2002) Does increased aromatase activity in adipose fibroblasts cause low sexual desire in patients with HIV lipodystrophy? *Sex Transm Infect*, 78, 64-6.
- Greenberg, J. B. (2001) Childhood sexual abuse and sexually transmitted diseases in adults: a review of and implications for STD/HIV programmes. *Int J STD AIDS*, 12, 777-83.
- Gwandure, C. (2007) Sexual assault in childhood: risk HIV and AIDS behaviours in adulthood. *AIDS Care*, 19, 1313-5.
- Hatch, J. P., A. M. de la Peña & J. G. Fisher (1987) Psychometric differentiation of psychogenic and organic erectile disorders. *J Urol*, 138, 781-3.
- Hijazi, L., R. Nandwani & P. Kell (2002) Medical management of sexual difficulties in HIV-positive individuals. *Int J STD AIDS*, 13, 587-92.
- Hofbauer, L. C. & A. E. Heufelder (1996) Endocrine implications of human immunodeficiency virus infection. *Medicine (Baltimore)*, 75, 262-78.
- Kalichman, S. C., K. J. Sikkema, K. DiFonzo, W. Luke & J. Austin (2002) Emotional adjustment in survivors of sexual assault living with HIV-AIDS. *J Trauma Stress*, 15, 289-96.
- Lambert, S., A. Keegan & J. Petrak (2005) Sex and relationships for HIV positive women since HAART: a quantitative study. *Sex Transm Infect*, 81, 333-7.
- Lawlor, A. & A. Braunack-Mayer (2004) Doctors' views about the importance of shared values in HIV positive patient care: a qualitative study. *J Med Ethics*, 30, 539-43.
- Lewis, R. W., K. S. Fugl-Meyer, R. Bosch, A. R. Fugl-Meyer, E. O. Laumann, E. Lizza & A. Martin-Morales (2004) Epidemiology/risk factors of sexual dysfunction. *J Sex Med*, 1, 35-9.

- Liebschutz, J. M., G. Feinman, L. Sullivan, M. Stein & J. Samet (2000) Physical and sexual abuse in women infected with the human immunodeficiency virus: increased illness and health care utilization. *Arch Intern Med*, 160, 1659-64.
- Lue, T. F. (2000) Erectile dysfunction. *N Engl J Med*, 342, 1802-13.
- Luzi, K., G. Guaraldi, R. Murri, M. De Paola, G. Orlando, N. Squillace, R. Esposito, V. Rochira, R. Vincenzo, L. Zirilli & E. Martinez (2009) Body image is a major determinant of sexual dysfunction in stable HIV-infected women. *Antivir Ther*, 14, 85-92.
- Merry, C., M. G. Barry, M. Ryan, J. F. Tjia, M. Hennessy, V. A. Eagling, F. Mulcahy & D. J. Back (1999) Interaction of sildenafil and indinavir when co-administered to HIV-positive patients. *AIDS*, 13, F101-7.
- Moreira, E. D., C. H. Abdo, E. B. Torres, C. F. Lôbo & J. A. Fittipaldi (2001) Prevalence and correlates of erectile dysfunction: results of the Brazilian study of sexual behavior. *Urology*, 58, 583-8.
- Newshan, G., B. Taylor & R. Gold (1998) Sexual functioning in ambulatory men with HIV/AIDS. *Int J STD AIDS*, 9, 672-6.
- Nicolosi, A., E. D. Moreira, M. Shirai, M. I. Bin Mohd Tambi & D. B. Glasser (2003) Epidemiology of erectile dysfunction in four countries: cross-national study of the prevalence and correlates of erectile dysfunction. *Urology*, 61, 201-6.
- Rabkin, J. G., R. Rabkin & G. J. Wagner (1997) Testosterone treatment of clinical hypogonadism in patients with HIV/AIDS. *Int J STD AIDS*, 8, 537-45.
- Rabkin, J. G., G. J. Wagner & R. Rabkin (1999) Testosterone therapy for human immunodeficiency virus-positive men with and without hypogonadism. *J Clin Psychopharmacol*, 19, 19-27.
- (2000) A double-blind, placebo-controlled trial of testosterone therapy for HIV-positive men with hypogonadal symptoms. *Arch Gen Psychiatry*, 57, 141-7; discussion 155-6.
- Richardson, D., D. Goldmeier, G. Frize, H. Lamba, C. De Souza, A. Kocsis & G. Scullard (2007) Letrozole versus testosterone. a single-center pilot study of HIV-infected men who have sex with men on highly active anti-retroviral therapy (HAART) with hypoactive sexual desire disorder and raised estradiol levels. *J Sex Med*, 4, 502-8.
- Rogstad, K. E., R. Shah, G. Tesfaladet, M. Abdullah & I. Ahmed-Jushuf (1999) Cardiovascular autonomic neuropathy in HIV infected patients. *Sex Transm Infect*, 75, 264-7.
- Rosen, R., C. Brown, J. Heiman, S. Leiblum, C. Meston, R. Shabsigh, D. Ferguson & R. D'Agostino (2000) The Female Sexual Function Index (FSFI): a multidimensional self-report instrument for the assessment of female sexual function. *J Sex Marital Ther*, 26, 191-208.
- Rosen, R. C., J. A. Catania, A. A. Ehrhardt, A. L. Burnett, T. F. Lue, K. McKenna, J. R. Heiman, S. Schwarcz, D. G. Ostrow, S. Hirshfield, D. W. Purcell, W. A. Fisher, R. Stall, P. N. Halkitis, D. M. Latini, J. Elford, E. O. Laumann, F. L. Sonenstein, D. J. Greenblatt, R. A. Kloner, J. Lee, D. Malebranche, E. Janssen, R. Diaz, J. D. Klausner, A. L. Caplan, G. Jackson, R. Shabsigh, J. H. Khalsa, D. M. Stoff, D. Goldmeier, H. Lamba, D. Richardson & H. Sadeghi-Nejad (2006) The Bolger conference on PDE-5 inhibition and HIV risk: implications for health policy and prevention. *J Sex Med*, 3, 960-75; discussion 973-5.
- Rosen, R. C., A. Riley, G. Wagner, I. H. Osterloh, J. Kirkpatrick & A. Mishra (1997) The international index of erectile function (IIEF): a multidimensional scale for assessment of erectile dysfunction. *Urology*, 49, 822-30.

- Rosser, B. R. S., J. M. Gobby & W. P. Carr. 1999. The unsafe sexual behavior of persons. 18-28.
- Schiltz, M. A. & T. G. Sandfort (2000) HIV-positive people, risk and sexual behaviour. *Soc Sci Med*, 50, 1571-88.
- Schrader, S., A. Mills, M. Scheperle & J. E. Block (2005) Improvement in sexual functioning and satisfaction in nonresponders to testosterone gel: clinical effectiveness in hypogonadal, HIV-positive males. *Clin Cornerstone*, 7 Suppl 4, S26-31.
- Seftel, A. D., R. J. Mack, A. R. Secrest & T. M. Smith (2004) Restorative increases in serum testosterone levels are significantly correlated to improvements in sexual functioning. *J Androl*, 25, 963-72.
- Segurado, A. C., E. Batistella, V. Nascimento, P. E. Braga, E. Filipe, N. Santos & V. Paiva (2008) Sexual abuse victimisation and perpetration in a cohort of men living with HIV/AIDS who have sex with women from São Paulo, Brazil. *AIDS Care*, 20, 15-20.
- Sikkema, K. J., P. A. Wilson, N. B. Hansen, A. Kochman, S. Neufeld, M. S. Ghebremichael & T. Kershaw (2008) Effects of a coping intervention on transmission risk behavior among people living with HIV/AIDS and a history of childhood sexual abuse. *J Acquir Immune Defic Syndr*, 47, 506-13.
- Sollima, S., M. Osio, F. Muscia, P. Gambaro, A. Alciati, M. Zucconi, T. Maga, F. Adorni, T. Bini & A. d'Arminio Monforte (2001) Protease inhibitors and erectile dysfunction. *AIDS*, 15, 2331-3.
- Speckens, A. E., M. W. Hengeveld, G. A. Lycklama à Nijeholt, A. M. van Hemert & K. E. Hawton (1993) Discrimination between psychogenic and organic erectile dysfunction. *J Psychosom Res*, 37, 135-45.
- Srilatha, B. & P. G. Adaikan (2004) Estrogen and phytoestrogen predispose to erectile dysfunction: do ER-alpha and ER-beta in the cavernosum play a role? *Urology*, 63, 382-6.
- Srilatha, B., P. G. Adaikan & Y. S. Chong (2007) Relevance of oestradiol-testosterone balance in erectile dysfunction patients' prognosis. *Singapore Med J*, 48, 114-8.
- Stein, M., D. S. Herman, E. Trisvan, P. Pirraglia, P. Engler & B. J. Anderson (2005) Alcohol use and sexual risk behavior among human immunodeficiency virus-positive persons. *Alcohol Clin Exp Res*, 29, 837-43.
- Trotta, M. P., A. Ammassari, R. Murri, P. Marconi, M. Zaccarelli, A. Cozzi-Lepri, R. Acinapura, N. Abrescia, P. De Longis, V. Tozzi, A. Scalzini, V. Vullo, E. Boumis, P. Nasta, A. Monforte, A. Antinori & A. a. A. S. Group (2008) Self-reported sexual dysfunction is frequent among HIV-infected persons and is associated with suboptimal adherence to antiretrovirals. *AIDS Patient Care STDS*, 22, 291-9.
- Trotta, M. P., A. Ammassari, R. Murri, A. Monforte & A. Antinori (2007) Sexual dysfunction in HIV infection. *Lancet*, 369, 905-6.
- Wasserman, P., S. Segal-Maurer & D. Rubin (2008) Low sex hormone-binding globulin and testosterone levels in association with erectile dysfunction among human immunodeficiency virus-infected men receiving testosterone and oxandrolone. *J Sex Med*, 5, 241-7.
- Whetten, K., J. Leserman, K. Lowe, D. Stangl, N. Thielman, M. Swartz, L. Hanisch & L. Van Scoyoc (2006) Prevalence of childhood sexual abuse and physical trauma in an HIV-positive sample from the deep south. *Am J Public Health*, 96, 1028-30.
- Yang, Y., T. Ikezoe, T. Takeuchi, Y. Adachi, Y. Ohtsuki, S. Takeuchi, H. P. Koeffler & H. Taguchi (2005) HIV-1 protease inhibitor induces growth arrest and apoptosis of human prostate cancer LNCaP cells in vitro and in vivo in conjunction with blockade of androgen receptor STAT3 and AKT signaling. *Cancer Sci*, 96, 425-33.



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The continuing AIDS pandemic reminds us that despite the unrelenting quest for knowledge since the early 1980s, we have much to learn about HIV and AIDS. This terrible syndrome represents one of the greatest challenges for science and medicine. The purpose of this book is to aid clinicians, provide a source of inspiration for researchers, and serve as a guide for graduate students in their continued search for a cure of HIV. The first part of this book, "From the laboratory to the clinic," and the second part, "From the clinic to the patients," represent the unique but intertwined mission of this work: to provide basic and clinical knowledge on HIV/AIDS.

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