Alexithymia in HIV, HCV and coinfections

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SUMMARY

Recent studies show that alexithymia, an impairment of emotional processing, plays a role in HIV and HCV infections, although little is known about about alexithymia in HIV/HCV coinfection. This study aimed to assess alexithymia in patients suffering from HIV, HCV or HIV/HCV coinfection and observe major differences. We selected 153 subjects, excluding those with psychiatric diagnosis, cognitive impairment or opportunistic diseases, of whom 70 (46%) had HIV infection, 57 (37%) HCV infection and 26 (17%) HIV/HCV coinfection. For the evaluation of alexithymia, we used the Toronto Alexithymia Scale (TAS-20), a self-report questionnaire which allows the results to be assessed both on a dimensional level and on defined cutoff scores. Data analysis showed significant differences between monoinfected and coinfected subjects. The coinfected group had a mean score of 54.00 ±13.43, higher than HIV (48.11 ± 12.38) and HCV (48.28 ± 10.71) ($p < 0.05$). Furthermore, we found clinically relevant scores (≥51) in 65.38% of coinfected subjects, in 42.85% of HIV and in 40.35% of HCV ($p < 0.05$). Given the medical and behavioral correlates of alexithymia highlighted in the literature, we suggest that further investigations are needed to clarify the relationship between alexithymia and HIV/HCV coinfection.

Keywords: Alexithymia, HIV, HCV, coinfections

INTRODUCTION

With the progressive establishment of the bio-psycho-social model, the vision of health has increasingly spread as a state of global well-being rather than a simple absence of illness [1]. The increasing attention paid to the quality of life (QoL) of patients has also allowed a deeper study of the emotional aspects linked to the organic pathology [2]. There are several studies dedicated to the alterations of the cognitive and emotional sphere in HIV and HCV, since both represent conditions with a high psychological and social impact. In this context, the interest of researchers has recently been focused on the study of alexithymic disease in HIV and HCV infections, while there are no studies about coinfections.

The term alexithymia refers to the inability to give a name to one's own feelings and indicates a deficit in affective and cognitive processing that involves different areas:

a) Difficulty in identifying feelings, to understand one's own state of mind and to distinguish between physical sensations and emotions;
b) difficulty in communicating one's feelings to others;
c) externally oriented thinking, a style of thought scarcely addressed to the internal experience that is reflected in a lack of self-reflexive and imaginative capacity [3, 4].

The alexithymic patient has therefore little ability to get in touch with his emotional experience and to connect the state of mind with the situations from which it originated. He experiences difficulties in implementing the process of modulation and emotional regulation which is

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fundamental for dealing with the stress caused by the disease and which is functional to the construction of adequate social support networks [5, 6].
Due to its characteristics, alexithymia can contribute to the development of medical and psychiatric diseases and has been repeatedly referred to as a transdiagnostic construct that can play a role in different pathologies [7]. It has been related to hypertension, gastrointestinal disorders, eating and anxious-depressive disorders, low cognitive performance, poor compliance, low quality of life and cardiovascular risk in HIV, depressive symptomatology, psychosomatic symptoms and side effects in HCV [10-17]. In literature, instead, studies on alexithymia in HIV/HCV coinfection are lacking.
Furthermore, alexithymia has been related to a passive attitude towards one's own health, poor ability to recognize physical symptoms and consequent diagnostic delays [18]. Finally, there are correlations between alexithymia and external locus of control, with a relative propensity to assume risky behaviors which, in the case of infectious diseases, represents a central node in relation to the possibility of transmission of the virus [19, 20].
Regarding the etiology, the researchers believe that alexithymia can be linked to both genetic and environmental factors. Neuroimaging studies have shown the involvement of specific brain areas [21-23]. In particular, Difficulty in Identifying Feelings (DIF) and Difficulty in Describing Feelings (DDF) are associated with lesions of the right hemisphere; Externally Oriented Thinking (EOT) is associated with the anterior cingulate cortex [24, 25]. Although the neural mechanism is still under investigation, several studies hypothesize the involvement of the frontal cortex [26-29].
It has also been hypothesized that alexithymia may be a secondary manifestation of medical conditions affecting the central nervous system [30, 31].
Among the different diagnostic tools of alexithymia, the most commonly used is the Toronto Alexithimya Scale (TAS-20), a reliable and valid measure of emotion processing.
This study aims to assess the degree of alexithymia in HIV, HCV and HIV/HCV coinfection and observes any differences.

PATIENTS AND METHODS

We evaluated alexithymia in 170 patients belonging to the Unit of Infectious Diseases of University Hospital "San Giovanni di Dio and Ruggi d'Aragona" (Salerno, Italy). Among them, we selected 153 subjects, excluding individuals with psychiatric diagnosis, cognitive impairment or opportunistic diseases. Among them, 70 (46%) with HIV infection, 57 (37%) with HCV infection and 26 (17%) with HIV/HCV coinfection. Each patient has completed:

- A personal data sheet for the evaluation of the following data: pathology, age, sex, level of education, sexual orientation, working condition, sentimental status. Subjects were also asked to indicate if they communicate with friends or family members about the problems related to their clinical condition;
- the Toronto Alexithimya Scale (TAS-20), a self-report questionnaire comprised by 20-item rated on a five-point Likert scale that includes two classes of scores: mild alexithymia (≥51 and ≤60); severe alexithymia (≥61). The TAS-20 also provides scores related to three sub-scales: Factor 1 - Difficulty identifying feelings (DIF); factor 2 - Difficulties describing feelings (DDF); external oriented thinking (EOT) (32-34);

RESULTS

The sample has a mean age of 51 years with about 12 years of schooling and is composed of males for 64.30%. About 77% of the subjects is heterosexual, 39,86% is employed and 57.51% is engaged in a stable relationship (Table 1).
Coinfected group is composed of males for approximately 65%, with a mean age of 46 years and 10 years of education. Subjects declare themselves largely heterosexual (88%), employed and engaged in a stable relationship for 50%.
HIV group is predominantly composed by men (about 73%) with a mean age of 46 years and 13 years of education. Heterosexual for 60%, employed for 44% and engaged in a stable relationship for 53%.
HCV group is composed of males for 54%, with a mean age of 59 years and about 12 years of education. Heterosexual for about 95%, employed for

Table 1 - Sample composition.

	HIV	*HCV*	*Coinfected*	*Total*
N (%)	70 (46)	57 (37)	26 (17)	153
Sex (male:female)	51:19	31:26	17:9	99:54
Age (mean, sd)	46.50 (12.31)	59.05 (13.03)	45.88 (8.76)	51.07 (13.49)
Education (years) (mean, sd)	13.09 (3.79)	11.72 (4.15)	10.46 (3.52)	12.13 (3.98)
Sexual orientation (hetero:homo)	42:28	54:3	23:3	119:34
Workers (n, %)	31 (44)	17 (30)	13 (50)	61 (40)
Stable relationship (n, %)	37 (53)	38 (66)	13 (50)	88 (57)

Table 2 - TAS-20 average scores.

	HIV	*HCV*	*Coinfected*	*Total*
F1(mean, ±sd)	15.83 (±6.512)	15.12 (±5.644)	17.65 (±7.161)	15.88 (±6.338)
F2 (mean, ±sd)	12.51(±4.587)	12.49 (±4.556)	14.42 (±4.492)	12.83 (±4.587)
F3 (mean, ±sd)	19.77(±4.378)	20.67 (±4.125)	21.62 (±4.224)	20.42 (±4.285)
Total	48.11(±12.389)	48.28 (±10.715)	54.00 (±13.431)	49.18 (± 12.102)

Table 3 - Differences in TAS-20 scores among the three groups of subjects.

	Mean (±sd)	*p*
Coinfected *vs* HIV		
Coinfected	54.00 (±13.431)	0.04
HIV	48.11(±12.389)	
Coinfected *vs* HCV		
Coinfected	54.00 (±13.431)	0.04
HCV	48.28 (±10.715)	
HIV *vs* HCV		
HIV	48.11 (±12.389)	
HCV	48.28 (±10.715)	0.93

30% and engaged in a stable relationship for 67%. Scoring of the TAS-20 showed that the total sample has a mean score of 49.18 ± 12.10. Coinfected group has a mean score of 54, higher than the cut-off for the definition of a borderline score. Instead, HIV and HCV subjects have a mean score of 48.11 and 48.28 respectively. Table 2 shows the scores related to the internal factors of the Scale.

Using SPSS software, we compared Coinfected' results respectively with those of HIV and HCV groups and evaluated whether there was a statistical significance through the Student's test. We found statistically significant differences in

Table 4 - Differences in TAS-20 internal factors among the three groups of subjects.

	F1		*F2*		*F3*	
	Mean (SD)	*p*	*Mean (SD)*	*p*	*Mean (SD)*	*p*
Coinfected *vs* HCV						
Coinfected	17.65 (±7.16)	0.08	14.42 (±4.49)	0.07	21.62 (±4.22)	0.33
HCV	15.12 (±5.64)		12.49 (±4.55)		20.67 (±4.12)	
Coinfected *vs* HIV						
Coinfected	17.65 (±7.16)	0.23	14.42 (±4.49)	0.07	21.62 (±4.22)	0.06
HIV	15.83 (±6.51)		12.51 (±4.59)		19.77 (±4.38)	
HIV *vs* HCV						
HIV	15.83 (±6.51)	0.52	12.51 (±4.59)	0.9	19.77 (±4.38)	0.24
HCV	15.12 (±5.64)		12.49 (±4.55)		20.67 (±4.12)	

the comparison between Coinfected and HIV (p = 0.04), and between Coinfected and HCV (p = 0.04), in both cases with higher levels of alexithymia in coinfected. On the other hand, mono-infected patient groups have substantially similar scores and there are not significant differences (p = 0.93) (Table 3). In relation to the internal factors of TAS-20, there are no statistically significant differences and the scores seem to be equally distributed among the three factors (Table 4).

Table 5 - Percentage frequencies of alexithymia.

	TAS-20 ≥51	*p*	*TAS-20 ≥61*	*p*
Coinfected *vs* HIV				
Coinfected	65.38%	0.04	30.76%	0.06
HIV	42.85%		14.28%	
Coinfected *vs* HCV				
Coinfected	65.38%	0.03	30.76%	0.07
HCV	40.35%		14.03%	
HIV *vs* HCV				
HIV	42.85%	0.08	14.28%	0.96
HCV	40.35%		14.03%	

Table 6 - TAS-20 and sociodemographic factors.

	Coinfected		*HIV*		*HCV*	
	Mean (SD)	*p*	*Mean (SD)*	*p*	*Mean (SD)*	*p*
Age						
≤50	57.00 (±12.495)	0.08	49.02 (±13.446)	0.37	53.44 (±10.529)	0.01
>50	47.21 (±13.781)		46.48 (±10.272)		45.90 (±10.057)	
Sex						
Male	52.65 (±13.323)	0.49	47.31 (±12.004)	0.38	46.55 (±10.502)	0.18
Female	56.56 (±14.054)		50.26 (±13.469)		50.35 (±10.800)	
Education						
≤8years	57.86 (±14.234)	0.11	51.56 (±10.405)	0.20	49.23 (±9.802)	0.60
>8years	49.50 (±11.382)		47.09 (±12.827)		47.69 (±11.349)	
Sexual orientation						
Heterosexual	53.61 (±14.228)	0.69	49.29 (±11.968)	0.33	48.83 (±10.664)	0.99
Omosexual	57.00 (±3.606)		46.36 (±13.016)		38.33 (±6.658)	
Relationship status						
Single	53.31 (±14.879)	0.79	49.18 (±13.485)	0.50	46.63 (±12.23)	0.41
Committed	54.69 (±12.385)		47.16 (±11.427)		49.11 (±9.945)	
Work						
Yes	54.00 (±15.188)	1.00	45.10 (±13.169)	0.06	41.29 (±8.901)	0.001
No	54.00 (±12.049)		50.51 (±11.334)		51.25 (±10.101)	
Communication						
Yes	52.20 (±12.925)	0.59	45.76 (±12.442)	0.12	46.36 (±9.396)	0.003
No	55.13 (±14.033)		50.33 (±12.093)		57.30 (±12.392)	

The TAS-20 can be read in both dimensional and categorical terms, so we also evaluated the data on the basis of the cutoffs and calculated the statistical significance through the Chi Square test. Coinfected show clinically relevant scores (≥51) in 65.38% of cases, HIV in 42.85% and HCV in 40.35%. There is a significant difference between Coinfected and HIV ($p = 0.04$), and Coinfected and HCV ($p = 0.03$), while there is no statistical significance comparing HIV and HCV groups ($p = 0.08$). On the other hand, considering the threshold value for the definition of severe alexithymia (≥61), coinfected are positive in 30.76% of cases, a percentage that drops to 14.28% in the HIV group and to 14.03% in the HCV group. There isn't a significant difference between Coinfected and HIV ($p = 0.06$) and between Coinfected and HCV ($p = 0.07$) (Table 5).

Regarding the weight of socio-demographic factors within each group, in the case of HIV/HCV coinfection and HIV infection there are no significant correlations between alexithymia and variables such as age, sex, education, sexual orientation, sentimental and occupational condition. In the case of HCV infection, age and employment factors appear to play a significant role, with lower levels of alexithymia in patients who are occupied or older than 50 years ($p<0.01$). Regarding the communication between the patients and their relatives about the concerns related to the disease, HCV group is the one that communicates to a greater extent (82.46%), followed by HIV (48.57%) and Coinfected (38.46%) groups. Only in HCV infection a lower degree of alexithymia has been found among the subjects who declare to communicate with relatives ($p<0.01$) (Table 6).

DISCUSSION

In literature there are several studies that highlight the relevance of alexithymia in patients with HIV and HCV, but there are no specific data about coinfections (11, 16, 17, 31). Starting from these observations, we wondered if there were any differences in the level of alexithymia in subjects with HIV infection, HCV infection or coinfected. We observed statistically significant differences and found that coinfected show higher mean scores and higher percentage frequency of alexithymia. This puts at the center a reflection on the weight of the emotional, psychical and social dimension of the patients involved, who would experience greater difficulties in managing their emotion, understanding their feelings and communicating them to the outside world. Although it is not possible to compare people with different diseases and histories, it should be considered that HIV/HCV coinfection could contain elements of greater complexity and requires greater attention to the patient's psychological experience. Furthermore, the clinical relevance of alexithymia was found in a considerable percentage of mono-infected subjects (about 40%).

Regarding socio-demographic variables, in addition to age, sex and education, we considered sexual orientation, sentimental and working status and communication with relatives about the concerns on their clinical condition. In HIV-infected patients, there was no significant correlation between alexithymia and socio-demographic variables, and the same can be said for coinfected patients. Significant correlations were found between HCV and age, work status and communication. Variables related to higher level of alexithymia are: less than 50 years old, unemployment and absence of communication about the infection. Also in this case, the importance of patient's emotional and social dimension cannot be underestimated. In our clinical experience, we observed that shame and fear of contagion are frequent also in HCV cases. These aspects compromise the psychological well-being of the patient and can be influenced by adequate psycho-social support aimed to help the patient to adapt to one's condition and manage his emotional experience in a more functional way.

This study raises some questions that could be deepen in future studies. Firstly, it would be interesting to carry out follow-up studies to assess changes in alexithymia over time in relation to history of illness, as well as the degree of alexithymia before and after the administration of treatment in the case of HCV infection. At second, one may wonder if the greater degree of alexithymia founded in coinfected is due to the effect of the co-presence of the two viruses on the CNS. In this sense, neuroimaging studies would be needed to deepen this aspect. Unfortunately, our study did not focus on the basic conditions of patients and we focused mainly on the emotional aspects, but alexithymia could be considered an integral

part of a general picture of greater severity of the disorder and the association with virological and immunological features, years of infection, treatment data and neurocognitive disorders, as noted for other diseases, should be more investigated [35]. At the same time, alexithymia could be considered as a reactive condition to diagnosis, a defensive operation against unpleasant feelings. Also in this case, further studies would be necessary to understand if alexithymia represents an antecedent condition to organic pathology or not. In conclusion, the assessment of alexithymia in infectious diseases plays an important role, especially considering that the ability to reflect on one's own experience and pay attention to the emotional state that follows the diagnosis, as well as the possibility of communicating to others and asking for help, are factors which strongly influence the possibility of adaptation to the disease. According to Capra, the starting point for every process of adaptation to the disease is the awareness that new and more functional ways of adapting to the surrounding reality can emerge from the crisis [36]. This process can be even more difficult for alexithymic patients, because it requires the activation of the baggage of introspective, emotional and communicative skills that may be not sufficient in this category of subjects. Although the small sample is an important limitation of our study, there are no other studies focusing on alexithymia in HIV/HCV coinfection and further investigations are needed to clarify the role of alexithymia in infectious disease, also in the light of the medical and behavioral correlates of alexithymia.

Conflict of interest
None to declare.

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