EAU18 COPENHAGEN 16-20 March 2018

1114: Erectile dysfunction in allogeneic hematopoietic stem cell transplant patients

Zampieri N. [1], **Andreini A.** [2], **Costantini C.** [2], **Bruno C.** [3], **Malerba G.** [4], **Tecchio C.** [5], **Camoglio F.S.** [6]

Azienda Ospedaliera Universitaria Integrata, University of Verona, Italy

Pediatric fertility Lab Group

DOMAIN	Number (%)
Socio-demographic	
Age at HSCT, median (range)	47,5 (19–67)
Educational level	
no high school (low education)	23 (44.2%)
high school or university	29 (55.8%)
Occupational status	
employed or student	40 (76.9%)
unemployed	3 (5.8 %)
retired	9 (17.3%)
Income status	
low	2 (3.8%)
sufficient or more than sufficient	50 (96.2%)
Partner	
absent	5 (9.6%)
present	47 (90.4 %)
Medical	
Conditioning type	
myeloablative/with total body irradiation	35 (67.3 %)/24 (68.6%)
reduced-intensity	17 (32.7 %)
Concomitant pathologies	
cardiopathy	8 (15.4%)
diabetes	6 (11.5%)
hypertension	15 (28.9%)
obesity	6 (11.5%)
cGVHD[a]	17 (32.7%)
cGVHD (genitals only)	3 (5.7%)
Penile elasticity	
medium-hard	12 (23%)
hard	7 (13.5%)
Psychological	
State anxiety	4 (7.7%)
Trait anxiety	6 (11.5%)
Depression	3 (5.7%)
Smoke dependence	6 (11.5%)
Previous recreational drug use	6 (11.5%)
Occasional alcohol abuse	3 (5.7%)

DOMAIN	no ED (n=16)	Total ED (n=31)	p	Moderate-Severe ED (n=20)	p
Socio-demographic					
Median age at HSCT	42 (23-65)	53 (25-67)		57 (37-67)	**1**
Low education level	3 (18.8%)	19 (61.3%)	**5**	12 (60%)	**18**
Unemployed	0	3 (9.6%)	69	2 (10%)	**20**
Retired	1 (6.2%)	7 (22.%)	234	6 (30%)	104
Low income	0	2 (6.7%)	536	1 (5.3%)	1
Medical					
Myeloablative regimen	11 (68.8%)	20 (64.5%)	1	13 (65%)	1
TBI	7 (43.8%)	15 (48.4%)	1	10 (50%)	748
Cardiopathy	0	6 (19.4%)	81	4 (20%)	113
Hypertension	2 (12.5%)	12 (40%)	91	11 (55%)	**13**
Diabetes	2 (12.5%)	3 (9.6%)	1	3 (15.7%)	1
Obesity	0	6 (19.4%)	81	5 (25%)	52
cGVHD[a]	2 (12.5%)	14 (45.2%)	**49**	11 (55%)	**13**
cGVHD (genitals only)	2 (12.5%)				
PE[b] (medium to hard)	6 (37.5%)	10 (32.2)	753	5 (25%)	483
FT[c] level (< lower limit)	13 (81.2%)	20 (64.5%)	321	13 (65%)	456
Psychological					
State anxiety	1 (6.2%)	1 (3.2%)	1	1 (5%)	196
Trait anxiety	0	5 (16.1%)	150	3 (15%)	238
Depression	0	3 (10%)	541	3 (15.7%)	233
Smoke dependence	1 (6.2%)	5 (16.1%)	206	5 (25%)	196
Recreational drugs used	2 (12.5%)	4 (12.9%)	1	2 (10%)	1
Occasional alcohol abuse	2 (12.5%)	1 (3.2%)	263	0	190

BACKGROUND-INTRODUCTION-AIMS

Allogeneic hematopoietic stem cell transplantation (HSCT) is a procedure with eventual life-threatening complications that in turn has the potential to cure a significant proportion of patients with otherwise fatal diseases; patients undergoing HSCT still remain exposed to a number of transplant-related morbidities. Among the latter chronic graft versus host disease (cGVHD), a multi-organ syndrome involving tissue inflammation and fibrosis[2], may affect patient quality of life in several aspects, including sexual functioning.In this regard, erectile dysfunction (ED), a multidimensional disturbance of the erectile response involving organic, relational and psychological components[3], has been reported to affect a significant proportion of patients after HSCT

The aims of our study were to establish the prevalence and the extent of ED in a series of 55 consecutive HSCT patients treated in our Institution, and to identify possible predictors for ED within socio-demographic, medical and psychological domains

MATERIALS AND METHODS

Patients who underwent HSCT between 2003 and 2015 were asked to participate in the study upon written informed consent. Criteria of inclusion were: age ≥ 18 years, an interval of time from HSCT ≥ 6 months, a status of continuous disease remission, and a complete understanding of the written and spoken Italian language. Criteria of exclusion were: concurrent malignancy, major psychiatric disorder or mental retardation, and ongoing hormonal replacement.

Presence and measure of ED were established at the time of the study by using the International Index of Erectile Dysfunction (IIEF15)[8], a self-administered questionnaire also exploring orgasmic function, sexual desire, intercourse, and overall satisfaction.

Patient socio-demographics were collected by an *ad hoc* self-administered schedule as previously described. Data on patient medical history as well as data on HSCT were obtained from medical records. Patients underwent an andrological examination including testicular measure, penis and genital skin inspection, preceded by a brief interview on their genital history. Penile ultrasound and elastosonography, a non-invasive assessment of penile elasticity, was also performed. Laboratory tests included measure of free testosterone (FT), inhibin A, follicle stimulating hormone (FSH), luteinizing hormone (LH), prolactin, thyroid stimulating hormone (TSH), free triiodothyronine 3 (FT3), FT4, cortisol, and adrenocoticotropic hormone (ACTH)

All patients underwent sonoelastography in order to evaluate the stifness of tissue to compare the results with objective aspects

RESULTS

Fifty-two of the 55 patients who were asked to participate in the study returned the questionnaires (94.5% response-rate).medical characteristics were: acute leukemia, (22 myeloid, 10 lymphoblastic), non-Hodgkin lymphoma (7), myelodysplastic syndrome (4), chronic myeloproliferative disease (4), multiple myeloma (3), and B-cell chronic lymphocytic leukemia (2)

Median time from HSCT to study assessments was 19 (6-108) months; 75% were affected by hypogonadism with a testicular volume ≤ 7 mm^3, while 9 (17.3%) had testicular volumes at the lower normal limit. Varicocele was detected in 13/52 (25%) patients. Penile ultrasound and elastosonography revealed that 12 (23%) and 7 (13.5%) patients had medium-hard and hard penile elasticity, respectively. FT and inhibin A levels were below the range limits in 34 (65.4%) and 33 (63.5%) patients respectively, while FSH was above the range limits in 47 (90.4%) of them, therefore confirming a large prevalence of gonadal failure. Three patients (5.7%) presented a mild hypotyrodism, while no significant alteration in prolactin, cortisol and ACTH levels were observed.

Overall 31/47 patients (66%) reported ED. The latter was severe in 13 (41.9%) patients, moderate in 7 (22.5%), moderate to mild in 2 (6.4%) and mild in 9 (29%). There was no difference between patients with and without ED in terms of median time from HSCT [25 (6-108) *vs* 15 (6-79) months, p=0.32]. As compared to unaffected patients, those with ED reported consistently lower IIEF15 scores in orgasmic function, sexual desire, intercourse and overall satisfaction domains

DISCUSSION

This report confirms that ED is a frequent complication of HSCT as it affected 66% of our patients. Although comparisons among series are hampered by different sample size, study design and methodological analysis, our data appear in line with previous studies on HSCT survivors reporting a prevalence of ED ranging between 50% and 79%. Notably the aforementioned percentages are significantly higher than those observed in the general population even comparing subjects throughout distinct age categories. Accordingly based on reference data obtained in a large sample of the Italian population, even the youngest patients of our series (i.e. 20-39 year-old) reported a significantly higher prevalence of ED (57%) when compared to matched controls (1.7%, p=0.00).

By analyzing a wide range of socio-demographic, medical and psychological variables, our report confirms that besides older age (a risk factor largely established in the general population)[6], a major determinant of ED in HSCT patients is represented by cGVHD. Similar data were reported by the largest study to date investigating sexual function in transplant survivors, and by previous studies describing a significant association between cGVHD, alone or in combination with other risk factors (i.e. total body irradiation), and male sexual dysfunction. Taken together these findings identify in cGVHD, a HSCT highly dependent variable, a significant predictor for ED, therefore indicating in its prevention and/or treatment possible areas of intervention.

Importantly, most of the lesions consistent with genital cGVHD were unknown by clinicians until patients andrological examination. Therefore, besides confirming that genitals represent a frequently under-reported/recognized site of cGVHD, these findings indicate that genital inspection should be always included in a comprehensive assessment of cGVHD. Although genital involvement has been shown to be associated with ED[12], in our experience as in previous studies[7], it did not appear essential for cGVHD in order to predict ED, especially when isolated

REFERENCES

Hamilton BK, Goje O, Savani BN, Majhail NS, Stratton P. Clinical management of genital chronic GvHD. Bone Marrow Transplant 2017;52:803-810.

Parazzini F, Menchini Fabris F, Bortolotti A, Calabrò A, Chatenoud L, Colli E, Landoni M, Lavezzari M, Turchi P, Sessa A, Mirone V. Frequency and determinants of erectile dysfunction in Italy. Eur Urol. 2000;37:43-49.