Sjögren-Like Syndrome after Bone Marrow Transplantation

Panida Kosrirukvongs MD*,
Niphon Chirapapaisan MD*, Sanan Visuthisakchai MD**,
Surapol Issaragrisil MD**, Vanngarm Gonggetyai MD***

** Department of Ophthalmology, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok*
*** Department of Medicine, Division of Hematology, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok*
**** Department of Clinical Pathology, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok*

Objective: *To study the incidence of dry eye in Sjögren-like syndrome, graft-versus-host disease (GVHD) in hematological patients undergoing bone marrow transplantation (BMT).*
Material and Method: *Prospective, cross-sectional study in twenty-six patients that were planned for BMT (group I). Twenty-nine patients undergoing BMT before study were classified as group II no GVHD (9), and group III with GVHD (20). Thirty-two normal subjects were controls. All subjects were examined by slit lamp biomicroscopy and had their tear samples analyzed about tear osmolarity. They were also evaluated for aqueous tear production by phenol red thread test, Schirmer test without anesthesia, tear film stability by tear break-up time (TBUT), and rose bengal staining 2 weeks before BMT (for group I) as well as 6 weeks, 3 months, and 6 months after BMT. The patients with GVHD were followed up 1 month later. Main outcome measures were amount of tear production, tear film stability, and dry eye symptoms.*
Results: *Average aqueous tear production in group III was less than control and group II ($p < 0.001$). Mean TBUT in group III was faster than control ($p < 0.001$) and group I before BMT ($p = 0.001$). Mean score of rose bengal staining in group III was more than control and group I before BMT ($p < 0.001$). Keratoconjunctivitis sicca and red eye developed in 27.5%, and 20% of group III, with incidence of dry eye by Schirmer test without anesthesia (67.5%). This compares with group II having incidence of dry eye of 16.7%. However, 42.3% of group I before BMT had dry eye compared with 9.4% in the controls ($p < 0.001$).*
Conclusion: *Trend of dry eye in patients with BMT and GVHD were higher than no-GVHD group. Doctors should be aware of ocular symptoms and signs of dry eye in patients with BMT and follow-up for proper management.*

Keywords: *Sj□gren-like syndrome, Keratoconjunctivitis sicca, graft-versus-host disease, Bone marrow transplantation*

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Allogenic bone marrow transplantation (BMT) is increasingly performed in Thailand as the essential alternative management for leukemia, aplastic anemia, and other hematologic conditions. Risks of many side effects of long-term chemotherapy, high doses of corticosteroid, and radiation are taken by patients. A major complication of BMT, graft-versus-host disease (GVHD), is a generalized systemic response characterized in the eyes as Sjögren-like syndrome (SLS), liver, skin as fasciitis and scleroderma, and oral ulcer[1-3]. In Hirst's study of 45 patients undergoing BMT, 20 patients (44%) developed severe dry eye, which correlated closely with the occurrence of acute GVHD[4]. Franklin reported dry eye in about 60% of their patients[5]. Mencucci et al found that 40% of the patients developed SLS and 77% of these developed acute or chronic

Correspondence to: Kosrirukvongs P, Department of Ophthalmology, Faculty of Medicine Siriraj Hospital, Bangkok 10700, Thailand. Phone: 0-2419-8033-4, Fax: 0-2411-1906, E-mail: sipks@mahidol.ac.th

GVHD[1]. Accumulation of PAS-positive material in the acini and ductules obliterated the lumina of the acini and suggested a stasis cause of dry eye, producing keratinization of the cornea and conjunctiva, related to acute GVHD[6]. Dry eye is a major complication of chronic GVHD. Inflammation and fibrosis play a central role of the pathology in dry eye associated with chronic GVHD. Therefore, the most frequent ocular manifestations are keratoconjunctivitis sicca, cicatricial lagophthalmos, and sterile conjunctivitis[7]. However, a pre-BMT conditioning regimen can have an effect on the incidence of GVHD, especially graft-versus-host prophylaxis conditioning regimen such as cyclosporine A and methotrexate may reduce the incidence of GVHD[8].

To our knowledge, the incidence of SLS and GVHD has not been studied in Thailand, including the clinical course and severity. The purposes of the present study were to explore the incidence of dry eye in SLS, acute, or chronic GVHD in the hematologic patients undergoing bone marrow transplantation, the severity and the clinical course of dry eye and the association of GVHD, and to compare the diagnostic test of dry eye by Phenol red thread test with gold standard - Schirmer test.

Material and Method

Twenty-six patients with leukemia, aplastic anemia, or other hematologic conditions at the hematology clinic, Siriraj Hospital, who planned to undergo BMT, were prospectively studied between February 2001 and April 2004. The indication for BMT included severe aplastic anemia, chronic myeloid leukemia in chronic phase, acute myeloid leukemia in first complete remission, and adult acute lymphoblastic leukemia in first complete remission[9-17]. The conditioning regimen for severe aplastic anemia (cyclophosphamide 200 mg/kg), acute lymphoblastic leukemia (total body irradiation and cyclophosphamide 120 mg/kg), acute myeloid leukemia, and chronic myeloid leukemia (busulfan 16 mg/kg and cyclophosphamide 120-200 mg/kg) were given and monitored[18-21]. Every patient received cyclosporine (3 mg/kg/day intravenously from day 1) and methotrexate (15 mg/m^2 intravenously on day 1 and 10 mg/m^2 on day 3, 6, and 11) as graft versus host disease prophylaxis. Diagnosis and clinical grading of acute (less than 2 months) or chronic GVHD were recorded using standard criteria[22,23]. Because of the small number of patients for BMT each year in Thailand, and the loss of follow-up or death, the 29 patients undergoing BMT before the study period who either developed GVHD or not, were also enrolled. The patients with exposure keratitis, blink abnormalities, meibomian gland dysfunction, and allergic conjunctivitis before studied period, were excluded. The present study was approved by the Ethics Committee on Research involving human subjects, Faculty of Medicine Siriraj Hospital, and informed consent was obtained. Thirty-two normal volunteers (64 eyes) who did not have any drug to induce dry eye symptoms or other diseases were included as the control group. The three groups of 55 patients were studied as 26 patients (52 eyes) of group I planned to undergo BMT and group II and III of twenty-nine patients underwent BMT before the present study, nine patients (18 eyes) of group II after BMT without GVHD and 20 patients (40 eyes) of group III after BMT with GVHD. All patients and control were examined by slit lamp biomicroscopy to measure tear meniscus height, had their tear samples analyzed about tear osmolarity, and were evaluated for aqueous tear production by phenol red thread test and Schirmer I test without anesthesia. The corneal sensation at the central area was measured by handheld esthesiometer. Evaluation of tear film stability, tear break-up time (TBUT), was performed. Diagnostic dye staining, fluorescein, and rose bengal were stained to detect ocular surface epithelial change associated with dry eyes. All tear evaluation was performed 2 weeks before BMT and 6 weeks, 3 months, and 6 months after BMT and one month later after GVHD. Patients who underwent BMT before the study period without GVHD (group II) and with GVHD (group III) were evaluated for tears at that time and one month later, as well as the normal volunteers of the control group.

The outcome measurement was determined by dry eye symptoms on a 4-point scale of 0-3 as follows, 0 = absent; 1 = mild irritation or discomfort; 2 = moderate, foreign body sensation and difficulty in opening the eyes with keratitis; 3 = severe dry eye symptoms with or without vascularization and/or keratinization. For the patients with dry eye grade 1, the artificial tear preservative free were supplement frequently as every hour until bedtime for lubrication. In case of grade 2, punctal occlusion and artificial tear preservative free were suggested. Topical cyclosporine and artificial tear ointment were added in severe dry eye[24].

For tear evaluation of osmolarity, phenol red thread test, Schirmer I test without anesthesia, TBUT compared with normal subjects and patients before BMT and after BMT. The authors performed these tests in order respectively followed by rose bengal staining

lastly or at the end of evaluation, because its irritation will affect subsequent tear break up time and the unanesthesized Schirmer test. Tear osmolarity higher than 308 mOsm (normal 302 ± 6 mOsm) was defined as dry eye. Phenol red thread test, a new quick test in 15 seconds without anesthesia and less than 10 mm, was used as a measure of aqueous tear production for diagnosis of dry eyes. However, Schirmer I test without anesthesia measuring less than 10 mm of wetting at 5 minutes as abnormal was defined as dry eye. Measuring the time before the first defect in the fluorescein stained tear film break up time (TBUT), values less than 10 seconds, were abnormal as dry eye. Positive rose bengal staining in the interpalpebral regions of a score greater than 3/9 was diagnosed as dry eye, keratoconjunctivitis sicca[25].

All data manipulation and analyses were performed in SPSS version 10.0. Qualitative variables were reported by frequency (%) and analyzed by Chi-square test and quantitative variables from different tear evaluation methods were summarized by mean ± standard deviation (SD) and analyzed nonparametric test, Kruskal Wallis test, Mann-Whitney U test, and Dunn's multiple comparison test. Statistics for measurement of agreement of different tear tests and Schirmer test in patients with clinically dry eye were analyzed. The statistical significance was determined when the p-value < 0.05.

Results

In the control group (64 eyes) the mean age was 35.7 ± 9.6 (years ± SD), ranged 17-58 years with female preponderance (62.5%). There were minimal feeling of dry eye in 25 eyes (39%), discomfort in two eyes (3%), burning in two eyes (3%), and foreign body sensation in two eyes (3%) without photophobia, difficulty in opening lids, discharge, red eye, and keratitis.

In group I, there were twenty-six patients before BMT (52 eyes). They had a mean age of 35.0 ± 9.7 (years ± SD), ranged 15-57 years, were 12 male (46.2%), and had a mean time before BMT of 0.4 ± 0.2 months. There was minimal discharge in 12 eyes (23%), mild burning in seven eyes (13.5%), photophobia in four eyes (7.7%), minimal feeling of dry eye in four eyes (7.7%), discomfort in two eyes (3.8%), and foreign body sensation in two eyes (3.8%), but no difficulty in opening lids, no red eye, and no keratitis. There was an association with blepharitis in two eyes (3.8%), and lagophthalmos in two eyes (3.8%). In this group, there were two patients with dry mouth and oral cavity disease (7.7%) and one patient with dry throat (3.8%). The most common underlying hematologic diseases were chronic myelocytic leukemia in 15 patients (57.7%), acute nonlymphocytic leukemia in five patients (19.2%), aplastic anemia in four patients (15.4%), acute lymphoblastic leukemia in one patient (3.8%), and refractory anemia with the excess of blast transformation in one patient (3.8%). Tear evaluation before BMT resulted in dry eye in 22 out of 52 eyes (42.3%), nine out of 26 eyes (34.6%) at 6 weeks after BMT, six out of 20 eyes (30%) at 3 months after BMT, and seven out of 10 eyes (70%) at 6 months after BMT. From the Schirmer I test without anesthesia there was dry eye in 11 of 35 eyes (31.4%), four of 16 eyes (25%) and three of eight eyes (37.5%) in the patients without dry eye at the beginning before BMT as followed up at 6 weeks, 3 months, and 6 months, respectively ($p = 0.005$, 0.075, 0.081). Four patients in this group developed GVHD at 2.8 ± 2.0 months after BMT. Acute GVHD was found in one patient, but three patients had chronic GVHD.

In group II, there were nine patients after BMT without GVHD before the present study (18 eyes). They had a mean age of 35.2 ± 9.6 (years ± SD), ranged 18-54 years, with five males (55.6%) and mean time after BMT 6.2 ± 5.8 months, ranged 0.3-14.3 months. Six patients had chronic myelocytic leukemia (66.7%) and three patients had acute nonlymphocytic leukemia (33.3%). There was no feeling of dry eye, discomfort, or foreign body sensation, with mild burning in four eyes (22%), severe photophobia in two eyes (11%), and moderate discharge in two eyes (11%), without red eye or keratitis. In this group, one patient (11%) had dry mouth and two patients (22.2%) had dry throat. Twenty-three percent of the patients received anti-cold, anti-tuberculosis, and anti-thyroid medication, which had a potential drying effect on the eye. Systemic diseases were associated with hyperthyroidism (20%) and tachypnea (10%) in the patients. One patient developed GVHD at 5.9 months after BMT.

In group III, there were twenty patients after BMT with GVHD group before the present study (40 eyes). They had a mean age of 35.1 ± 8.3 (years ± SD), ranged 23-50 years with 12 male (60%), a mean time after BMT 25.3 ± 28.8 months, ranged 1.2-120.4 months and mean time after BMT to have GVHD of 8.0 ± 6.7 months. An history of eye discharge in 21 eyes (52.5%), foreign body sensation in 17 eyes (42.5%), discomfort in 16 eyes (40%), burning in 15 eyes (37.5%), dry eye in 14 eyes (35%), photophobia in 11 eyes (27.5%), keratitis in 11 eyes (27.5%), red eye in eight eyes (20%), and difficulty to open lids in two eyes (5%) were found in patients in this group. Ten percent of the patients

received anti–tuberculosis drugs and thyroid medication. They were associated with dry mouth in seven patients (35%), and dry throat in three patients (15%). There were lagophthalmos in two eyes (5%), and one patient with hyperthyroid (5%). The hematologic diseases were chronic myelocytic leukemia in 10 patients (50%), acute nonlymphocytic leukemia in four patients (20%), acute myelocytic leukemia in two patients (10%), aplastic anemia in two patients (10%), acute lymphoblastic leukemia in one patient (5%) and myelofibrosis in one patient (5%). The duration of GVHD was 19.2 ± 27.8 (months ± SD). Among patients with GVHD, hepatic involvement was diagnosed in 15 patients (75%). Skin involvement was found in nine patients (45%). Keratoconjunctivitis sicca (KCS, dry eye) was diagnosed in nine patients (45%). Other mucosal surface resulting in dry mouth in three patients (15%) and gastrointestinal system involvement in two patients (10%) were associated with the GVHD group. The treatment given for the patients who developed GVHD needed to be given.

Two patients with acute GVHD died from gastrointestinal bleeding within one month after BMT and one patient with chronic GVHD died from brain abscess at 8 months after BMT.

The mean value of the tear test was less than that of the no-GVHD and control group with a higher percentage of dry eyes in the GVHD group (Table 1).

Mean age difference among groups was not significant, $p = 0.976$. The mean palpebral fissure height of the control group had significantly higher than patients group II ($p = 0.003$) and group III ($p < 0.001$), but the same as group I compared with group III ($p < 0.001$).

The mean comparison of tear meniscus height between the control group and patients in group I was significantly different, $p < 0.001$; group II, $p = 0.015$; and group III ($p < 0.001$).

The mean tear osmolarity of patients group I was more than the control group ($p = 0.004$), and group II ($p < 0.001$), but similar to group III compared with group II ($p = 0.01$).

Table 1. Characteristics of normal subjects (control group) and patients before and after BMT

	Mean ± SD				p-value
	Control	Before BMT	After BMT before the study		
			No GVHD	GVHD	
		(group I)	(group II)	(group III)	
	64 eyes	52 eyes	18 eyes	40 eyes	
Palpebral fissure height (mm)	9.8 ± 0.9	9.6 ± 1.2**	9.1 ± 0.6*	8.6 ± 1.1*	<0.001
Corneal sensation (cm)	5.9 ± 0.4	5.9 ± 0.2	5.9 ± 0.2	5.8 ± 0.6	0.691
Tear meniscus height (mm)	0.3 ± 0.2	0.2 ± 0.1*	0.2 ± 0.1*	0.1 ± 0.1*	<0.001
< 1 mm. = dry (%)	60 (93.8)	48 (92.3)	16 (88.9)	40 (100)	
Tear osmolarity (mOsm)	316.8 ± 37.9	331.7 ± 44.8*	306.1 ± 1.5□	345.3 ± 138.5□	0.001
>308 mOsm = dry (%)	37 (57.8)	41 (78.8)	8 (44.4)	27 (71.1)	
TBUT (sec)	11.2 ± 3.8	10.7 ± 6.5**	9.8 ± 5.7	8.0 ± 5.9*	0.001
< 10 sec = dry (%)	19 (29.7)	26 (50.0)	9 (50)	29 (72.5)	
Phenol red thread test	25.0 ± 7.9	21.3 ± 6.6	24.8 ± 9.1□	17.4 ± 8.3* **	<0.001
< 10 mm/15 sec = dry (%)	0	1 (1.9)	0	5 (12.5)	
Schirmer tear test without anesthesia	23.8 ± 12.8	15.3 ± 14.0*	22.3 ± 13.6□	6.3 ± 6.4*	<0.001
< 10 mm/5 mins = dry (%)	6 (9.4)	22 (42.3)	8 (16.7)	27 (67.5)	
Rose bengal staining	0.0 ± 0.0	0.4 ± 0.7*	0.3 ± 0.5*□	1.3 ± 1.5* **	<0.001
score > 3 = dry (%)	0	1 (1.9)	0	8 (20)	

TBUT = fluorescein tear breakup time

* p-value compared control group with group before BMT and group after BMT

** p-value compared group before BMT with group after BMT and GVHD

□ p-value compared group before BMT with group after BMT and no GVHD

□ p-value compared group after BMT and no GVHD with group after BMT and GVHD

The mean fluorescein tear breakup time in patients group III was significantly faster compared with the control group ($p < 0.001$), and group I ($p = 0.015$).

The mean comparison of tear production by phenol red thread test in patients group III and the control group was significantly different, $p < 0.001$. However, it was the same as group III and group II ($p = 0.006$).

The less tear production evaluated by Schirmer I test without anesthesia in patients group III compared with the control group, group I and group II with statistically significant difference ($p < 0.001$). The mean comparison of tear production by Schirmer I test without anesthesia in patients in group I and the control group was significantly different ($p < 0.001$), the same as group I and II ($p = 0.027$).

The mean score of rose bengal staining ocular surface in patients group III was more than the control group ($p < 0.001$), group I ($p = 0.001$), and group II ($p = 0.011$), with statistical significance. In the control group, the mean score of rose bengal staining was less than group I and group II ($p < 0.001$).

The mean value of tear meniscus, phenol red thread test and Schirmer I test without anesthesia in patients with feeling of dry eye was less than that in patients without feeling of dry eye with statistical significance, but tear osmolarity was more in the latter group (Table 2).

The percentage of dry eye by Schirmer I test without anesthesia and rose bengal staining in nine patients with feeling of dry eye were more than in 46 patients without feeling of dry eye (88.9 vs. 39.1 ($p < 0.001$) and 27.8 vs. 4.3 ($p = 0.006$), respectively) with statistically significant differences.

The most sensitivity from the tear test compared with Schirmer I test without anesthesia was the height of tear meniscus but phenol red thread test had the most specificity. In the comparison of various tear tests and Schirmer I test without anesthesia, sensitivity, and specificity of tear osmolarity and TBUT were higher than the phenol red thread test in the control group and patients.

Measurement of agreement of tear meniscus height, TBUT, and phenol red thread test with Schirmer I test without anesthesia in patients without feeling of dry eye were significantly minimal from low kappa value 0.086, 0.366, and 0.100, respectively. Measurement of agreement of Schirmer I test without anesthesia (dry) and percentage of feeling of dry eye was 30.4% with low kappa value (0.321), whereas, measurement of agreement of TBUT and percentage of feeling of dry eye was 21.4% with low kappa value (0.111) as well.

Grading of severity of dry eye in the GVHD group was more than in the other group (Table 3). Symptoms and signs of dry eye in the GVHD group were found more than in the other group (Table 4).

Discussion

Chronic GVHD is a unique complication of BMT, despite acute GVHD manifested by severe diarrhea, hepatitis, and cutaneous eruption contributory to death[26]. In the present study, acute GVHD was found in only one patient. The possible etiology of SLS includes total body irradiation, ocular toxicity of chemotherapy, and GVHD[1]. Chronic GVHD had auto-antibody formation (IgM anti-cytoplasmic factor)

Table 2. Mean value of various tests in 55 BMT patients (110 eyes) regarding feeling of dry eye at the first examination

	No feeling of dry eye	Feeling of dry eye
n (eyes)	92	18
Tear meniscus	0.2 ± 0.1	0.1 ± 0.1*
Tear osmolarity	334.0 ± 95.9	323.3 ± 26.2
TBUT	9.7 ± 6.2	8.7 ± 6.2
Phenol red thread test	21.6 ± 7.8	14.7 ± 7.2**
Schirmer I test without anesthesia	15.1 ± 13.3	3.4 ± 4.4**
Rose bengal score	0.0 ± 0.2	0.3 ± 0.5

* p-value < 0.05
** p-value ≤ 0.001

Table 3. Grading of severity of dry eye in patients group II and III after BMT before the study period

Dry eye	%	
	No GVHD	GVHD
No symptom	-	7.4
Mild (irritation, discomfort)	100	3.7
Moderate (irritation, discomfort, foreign body sensation, difficulty to open eyelid, photophobia, keratitis)	-	33.3
Severe (moderate + vascularization + keratinization)	-	55.6
p-value	0.001	0.002

Table 4. Symptoms and signs of dry eye in control group and patients before and after BMT

	n (%)			
	Control	Before BMT	After BMT	
			No GVHD	GVHD
	64 eyes	(group I) 52 eyes	(group II) 18 eyes	(group III) 40 eyes
Discharge	-	12 (23.1)	2 (11.1)	21 (52.5)
Foreign body sensation	2 (3.1)	2 (3.8)	-	17 (42.5)
Dry eye	25 (39.1)	4 (7.7)	-	14 (35)
Discomfort	2 (3.1)	2 (3.8)	-	16 (40)
Burning	2 (3.1)	7 (13.5)	4 (22.2)	15 (37.5)
Photophobia	-	4 (7.7)	2 (11.1)	11 (27.5)
Keratitis	-	-	-	11 (27.5)
Red eye	-	-	-	8 (20)
Difficulty of opening lids	-	-	-	2 (5)
Pannus	-	-	-	1 (2.5)

post BMT occurring in 37% and 20% of the allogenic and autologous groups, unrelated to the graft-versus-host process[27]. SLS developed in 47% of allogenic and 20% of autologous patients[27].

The authors tried to match age and sex of the control group with the patients but it was very difficult to find enough subjects (only 50%). However, the authors still matched the control group with age because of dry eye effect often associated with old age. Tear evaluation in the control group from Schirmer I test without anesthesia resulted in dry eye in 9.4% despite minimal feeling of dry eye (39%) (Table 1). Low watery intake and air conditioning environment with other causes possibly influenced the effect on tears. Similar to Khurana et al study, Schirmer I test without anesthesia as dry eye was diagnosed in 3% of normal subjects[28].

Subjective symptoms related to KCS were reported most commonly in patients with GVHD. In the present study, dry eye from Schirmer I test developed in 67.5% of the patients in group III compared with 42.3% of the patients in group I, with an increase of 70% at 6-months follow-up as GVHD developed, similar to Hirst's report (76%)[4]. It may be from different general conditions, medications and associated diseases in hematologic patients in order to control their diseases. In the present study, the authors did not find pseudo-membranous conjunctivitis, generally developed during the first four to six weeks after BMT. Furthermore, three patients in the present study passed away after BMT, resulting in a lack of follow-up.

Punctate epitheliopathy was found only in dry eye patients with moderate severity. The presented patients who were followed 6 months after BMT did not have feeling of dry eye because of GVHD did not develop in the short period of follow-up. The patients with SLS and extensive chronic GVHD had abnormal scintiscan and lip biopsy at day 100, but marked kerato-conjunctivitis sicca and xerostomia developed between 12 and 24 months after BMT[29]. Gratwhol et al reported that the patients complained of dry eye 8 to 12 months after transplantation[30]. Despite the small sample size in the present study, SLS in the GVHD group was commonly found as an other report[31]. A significant role for stromal fibroblast in the lacrimal glandular interstitium in addition to infiltration of T cells into the periductal areas showed prominent fibrosis in dry eye related to chronic GVHD[31]. Therefore, artificial tears without preservatives should be used to relieve kerato-conjunctivitis sicca in these patients.

Regarding the tear test, none of the tests is the best with high sensitivity and specificity. Khurana reports that the sensitivity of Schirmer test and TBUT in dry eye patients was 79% and 79%, respectively[28]. Although tear osmolarity is a sensitive test for identifying dry eye, it has low specificity. Tear film osmolarity may be elevated secondarily to decrease tear secretion because of lacrimal gland disease and/or increased tear evaporation resulting from exposure, blink abnormalities or meibomian gland disease. Tear volume in patients with feeling of dry eye was less than that in the group without feeling of dry eye, significantly by phenol red thread test and Schirmer I test without anesthesia as shown in Table 2. Recently, phenol red thread test has limitation for diagnostic tools because of inappropriate reproducibility. However, the percentage of dry eye in patients with feeling of dry eye was high (89%) in Schirmer I test without anesthesia. Therefore, Schirmer test without anesthesia was still recommended to diagnose dry eye. The authors should choose many tests to evaluate dry eye for screening, interpretation and guidelines for treating Sj□gren - like syndrome after bone marrow transplantation, especially with GVHD. In conclusion, trend of dry eye in patients with BMT and GVHD were higher than the no-GVHD group. Doctors should be aware of ocular symptoms and signs of dry eye in patients with BMT, and follow-up for proper management.

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กลุ่มอาการตาแห้งโซเกรน หลังปลูกถ่ายไขกระดูก

พนิดา โกสียรักษ์วงศ์, นิพนธ์ จิรภาไพศาล, สนั่น วิสุทธิศักดิ์ชัย, สุรพล อิสรไกรศีล, วันงาม กองเกตุใหญ่

วัตถุประสงค์: *เพื่อศึกษาอุบัติการณ์ตาแห้งแบบกลุ่มอาการโซเกรน ในผู้ป่วยโรคเลือดที่มีปฏิกิริยาจีวีเอชดีหลังปลูกถ่ายไขกระดูก*

วัสดุและวิธีการ: *ทำการศึกษาไปข้างหน้าแบบตัดขวาง ในผู้ป่วยที่เตรียมปลูกถ่ายไขกระดูกเป็นกลุ่มที่ 1 จำนวน 26 ราย ผู้ป่วยที่ปลูกถ่ายไขกระดูกแล้วก่อนช่วงศึกษาจำนวน 29 ราย แบ่งเป็นกลุ่มที่ยังไม่มีปฏิกิริยาหลังปลูกถ่ายเป็นกลุ่มที่ 2 จำนวน 9 ราย และกลุ่มที่มีปฏิกิริยาหลังปลูกถ่ายเป็นกลุ่มที่ 3 จำนวน 20 ราย คนปกติเป็นกลุ่มควบคุมจำนวน 32 ราย ทุกรายได้รับการตรวจตาด้วยกล้องตรวจตาลำแสงแคบ เก็บตัวอย่างน้ำตามาวิเคราะห์หาออสโมลาริตี วัดปริมาณน้ำตาโดยวิธีเส้นด้ายสีแดงที่เคลือบฟีนอล และวิธีเชอร์เมอร์ที่ไม่หยอดยาชา จับเวลาที่น้ำตาแตกตัว และบันทึกคะแนนผิวตาติดสีโรสเบงกอล ในกลุ่มที่ 1 ก่อนปลูกถ่ายไขกระดูก 2 สัปดาห์ หลังปลูกถ่ายไขกระดูก 6 สัปดาห์ 3 เดือน และ 6 เดือน ในรายที่มีปฏิกิริยาจีวีเอชดีหลังปลูกถ่ายจะตรวจซ้ำอีก 1 เดือน*

ผลการศึกษา: *ในกลุ่มที่ 3 ที่มีปฏิกิริยาจีวีเอชดีหลังปลูกถ่ายไขกระดูกมีปริมาณน้ำตาน้อยกว่ากลุ่มควบคุม และกลุ่มที่ 2 ที่ไม่มีปฏิกิริยาจีวีเอชดีหลังปลูกถ่าย (ค่าพี < 0.001) ค่าเฉลี่ยของเวลาที่น้ำตาแตกตัวในกลุ่มที่ 3 เร็วกว่ากลุ่มควบคุม (ค่าพี < 0.001) และกลุ่มที่ 1 ก่อนปลูกถ่าย (ค่าพี = 0.001) คะแนนเฉลี่ยที่ผิวตาติดสีโรสเบงกอลในกลุ่มที่ 3 มากกว่ากลุ่มควบคุมและกลุ่มที่ 1 (ค่าพี < 0.001) กลุ่มที่ 3 พบเยื่อตา กระจกตาแห้งร้อยละ 27.5 ตาแดงร้อยละ 20 เมื่อตรวจปริมาณน้ำตาด้วยวิธีเชอร์เมอร์ที่ไม่หยอดยาชา พบอุบัติการณ์ตาแห้งกลุ่มอาการโซเกรนในกลุ่มที่ 3 ร้อยละ 67.5 เปรียบเทียบกับกลุ่มที่ 2 ร้อยละ 16.7 แต่ในกลุ่มที่ 1 ร้อยละ 42.3 เปรียบเทียบกับกลุ่มควบคุมร้อยละ 9.4 (ค่าพี < 0.001)*

สรุป: *แนวโน้มตาแห้งในผู้ป่วยที่มีปฏิกิริยาจีวีเอชดีหลังปลูกถ่ายไขกระดูก พบบ่อยกว่ากลุ่มที่ไม่มีปฏิกิริยา จึงควรตระหนักภาวะตาแห้งกลุ่มอาการโซเกรน และเฝ้าติดตามอาการทางตา และอาการแสดง เพื่อการดูแลที่เหมาะสมต่อไป*