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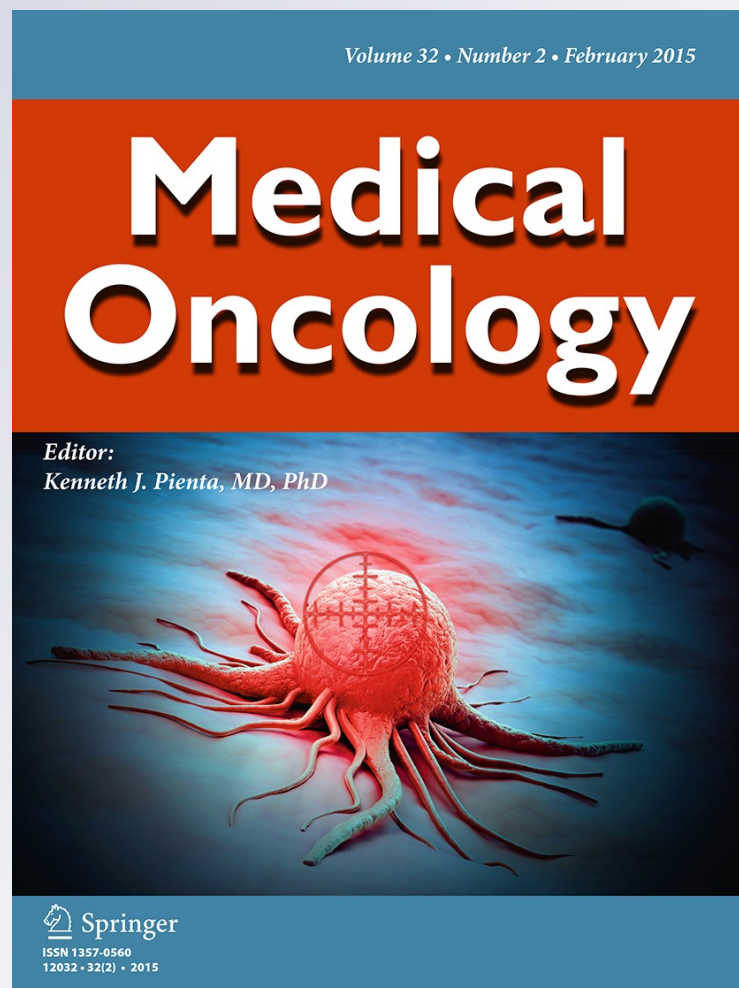
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Perspectives and practical applications of medical oncologists on defensive medicine (SYSIPHUS study): a study of the Palliative Care Working Committee of the Turkish Oncology Group (TOG)

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Abstract Defensive medicine occasionally indulges unnecessary treatment requests to defend against lawsuits for medical errors and the use of unapproved medical applications. This study determines the attitudes and orientations of medical oncologists on defensive medicine. A cross-sectional survey was sent by e-mail to medical oncologists. The survey was designed to determine the participants' demographic characteristics and defensive medicine practices. The survey measured the attitudes about defensive medicine practices of the oncologists based on a five-point Likert scale (never, rarely, sometimes, often, and always). One hundred and forty-six of a total of 402 physicians serving in oncology were fully filled, and the rate of return invitation was 36 %. The majority of participants were male, with a duration of between 7 and 9 years of work as university hospital officials, and the mean age was 46 ± 9 (years). International guidelines were followed in the most common is NCCN, and the majority of respondents felt that the application of these

guidelines improves their defensive medicine. All participants of defensive medicine who stand on the basis of the definition were found to be more afraid of complaints by patients' relatives. Physicians of 45 % was noted that applying defensive medicine. Among the participants were the most frequent checkups of positive defensive approach is defined as increasing or shortening the follow-up period, while avoiding high-risk patients were detected as described in the definition of negative defensive medicine. Both professional groups in both the positive and negative defensive medicine approach defensive medicine approach, academic tasks, work experience and job time, there was a significant correlation between the location. Made in single- and multi-variable analyses, positions were identified both positive and negative defensive medicine is an independent risk factor for direction. Improving the working conditions of young physicians to protect against medical error may require additional educational opportunities.

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Introduction

The growing number of patients and advances in the expanding field of diagnosis and treatment innovation are increasing the medical liability of physicians [1, 2]. In the area of health law, patients' rights law and medical liability have been integrated to create clearer legal sanctions, which have led to an increase in medical malpractice lawsuits [1–3]. Social media may be one reason why patients and their relatives have become aware of these patients' rights [2]. Thus, the pressure on physicians being sued for medical malpractice has increased [1, 2, 4]. Indeed, the increasing economic burden of medical malpractice litigation against physicians and medical institutions in the US and the Europe has been thoroughly documented in the literature [5–10]. The fear of malpractice litigation may debilitate physicians' ability to cope with the pressures of their jobs [6–8]. The concept of defensive medicine, which is becoming more common, has begun to garner increasing attention [4].

The concept of defensive medicine was first proposed in 1972 by Hershey [11]. Hershey [11] defined the concept of defensive medicine as: "Defensive medicine is a deviation from medical practice that is induced primarily by a threat of liability." Following years of advances in modern medicine and as a result of the defensive medicine phenomenon, new legislation and social developments have led to new protections for physicians [4, 10].

The Congressional Office of Technology Assessment (OTA) in 1994 stated: "Defensive medicine occurs when doctors order tests, procedures, or visits or avoid high-risk patients or procedures, primarily—but not necessarily or solely—to reduce their exposure to malpractice liability" [12].

As a result, defensive medicine physicians indulge requests for diagnoses or unapproved methods of treatment to prevent being sued for medical malpractice [8, 9]. Acquiescing to requests for excessive medical testing or procedures is called positive defensive medicine and is practiced by physicians to avoid malpractice lawsuits, and avoiding some patients or procedures is called negative defensive medicine [8–10]. Physicians today are engaging in an increasing number of defensive medicine practices [8, 10].

Studdert et al. [13] conducted a survey that found that physicians practicing emergency medicine, general surgery, orthopedic surgery, neurosurgery, obstetrics and gynecology, radiology, and high-risk specialties are entitled to legal representation. The party suing a physician must prove malpractice based on risk grouping [13]. Certain

diseases and surgical malpractice processes are related to treatment and attitude surveys that measure defensive medicine approaches in the literature [13–23]. However, medical oncologists have not been surveyed. Our study is the first survey of medical oncologists. The attitudes and orientations of medical oncologists on defensive medicine were determined in the cross-sectional survey.

Methods and individuals

Study design

In this study, a cross-sectional survey of staff physicians in medical oncology was conducted. The study was presented as a project at the 8th National Oncological Studies Workshop (2012, Antalya) and was accepted as a study of the Palliative Care Working Committee. First, a systemic literature search was conducted. Electronic health and social sciences databases (PubMed, EMBASE, PsycINFO, Index Copernicus, Google Scholars, etc.) were searched from 1950 to May 2014. The literature search was performed using the following key words either alone or in combination: "defensive medicine," "oncologists," "physicians," "liability," "law," and "malpractice." The study's methods of measurement and tools were created and revised by the researchers, who were members of the Palliative Care Working Committee. The study design, study sample, measurements, and tools were identified at the group meeting of the November 2013 Palliative Care Working Committee.

Study sample

The target population for this study consisted of a total of 402 medical oncology fellows and specialists who actively worked in Turkey between August 2014 and November 2014. A link to an electronic questionnaire was e-mailed to members of the Turkish Society of Medical Oncology. During this 4-month period, the invitation e-mail was re-sent every 2 weeks.

Ethical considerations

The medical oncologists who agreed to participate in the study were required to read and sign consent forms prior to being accepted into the study. Those oncologists who did not approve of the study did not sign the consent forms.

Measures and tools

To design the data collection questionnaire, the most appropriate content was developed through literature reviews

and interviews with experts who were members of the study committee.

The questionnaire had three purposes: to collect demographic and occupational data, to assess the perceptions of physicians of the definition of defensive medicine and their experiences with malpractice and international cancer guidelines, and to assess the prevalence of positive and negative approaches of defensive medicine among the physicians. The expected time to complete the survey was approximately 19 min.

The demographic and occupational data form included questions regarding personal status such as age, gender, occupational status, workplace, and number of years of work experience.

The second portion of survey contained the questions determining how the physicians perceive defensive medicine, and the physicians were allowed to mark more than one option. Definitions 1 and 8 of the items did not reflect the true definition of defensive medicine. Definitions 2–7 of the items included comments regarding how the physicians perceived the underlying defensive medicine (fear of being sued by patients, fear of complaints to the administrative authorities by the patient, fear of being exposed to verbal or physical violence by the patient, fear of administrative investigations due to patients complaints, fear of personal guarantee to get himself, and feeling the urge to avoid the feeling of anxiety). This portion also included questions about malpractice in terms of relevant experience and international guidelines.

The final portion of the questionnaire asked about clinical approaches related to positive and negative defensive medicine physicians. This section consisted of 5-point Likert scale questions (Never, rarely, sometimes, quite frequently, and nearly always).

Statistical analysis

The data were expressed as the mean \pm standard deviation or the median and interquartile range (25 % to 75 %). The distribution of variables was analyzed using the Kolmogorov–Smirnov test, and a descriptive analysis was performed for all study variables. Quantitative variables with normal distributions were analyzed with a two-tailed, independent Student's *t* test. Nonparametric variables were analyzed with the Mann–Whitney *U* test. Categorical variables were analyzed using either Chi-square or Fisher's exact tests.

The relationships between the experience of defensive medicine and the other study variables including age, gender, occupational status, work-place, and years of work experience were determined using Spearman's correlation tests and analysis of variance (ANOVA). The dependent variable for the multiple logistic regression analysis

consisted of the experiences of defensive medicine. Both the adjusted and crude odds ratios (ORs) were calculated with 95 % confidence intervals (95 % CI) to assess the influences of various independent variables on the approaches to defensive medicine practice. A significance value of $p < 0.05$ was accepted as statistically significant. All of the analyses were performed using the Statistical Program for Social Sciences (SPSS) version 15.

Results

General information

In all, 146 of 402 physicians responded to our invitation to complete the questionnaire, and the response rate was 36 %.

The majority of participants were male (46 %), had 7–9 years of work experience (40 %), worked at an university hospital (73 %), and had an academic degree (51 %). The mean age of the respondents was 44 years (range 31–58; 46 ± 9 years). Demographic and occupational features are displayed in Table 1.

Perceptions of definition of defensive medicine

The responses regarding the definition of defensive medicine physicians are shown in Table 2. The respondents were allowed to mark more than one option to measure their perceived definitions of defensive medicine more clearly. This section presents the most detailed definition of defensive medicine, in item 5: “Patients and their relatives determine the methods of examination and treatment within evidence-based medicine to protect themselves from complaining” (64 %). However, to avoid being sued by non-academic titles experts (item 3) and administrative investigations (item 4), defensive medicine definitions containing this perception posed more response options compared with other physicians ($p = 0.043$ and $p = 0.041$, respectively). Definition of defensive medicine in “item 1” is not enough and it is marked by 23 % of all the participants. It is interesting to note that this option was selected by 71 % of fellows ($p = 0.038$).

Experiences with defensive medicine, malpractice, and international guidelines

The behavior of defensive medicine physicians who had experienced malpractice lawsuits and international guidelines is presented in Table 1. The proportion of physicians who “nearly always” followed the international guidelines was 41 % ($n = 60$). Additionally, 51 % ($n = 74$) of physicians improved their defensive medicine practices

Table 1 Demographical and occupational characteristics of physicians and their experiences on defensive medicine, malpractice, and international guidelines

Features	n	%
Participants	146	100
Gender		
Male	81	56
Female	65	44
Occupational status		
Fellow	34	23
Non-academic specialist	38	26
Academic specialist	74	51
Work experience (years)		
1–3	34	23
4–6	42	29
7–9	59	40
10 and over	11	8
Workplace		
State Hospital	14	10
Education and Research Hospital	37	25
University Hospital	73	50
Private Hospital	20	14
Self-employed	2	1
Follow your international guideline(s)*		
NCCN	134	92
ESMO	91	62
ASCO	64	44
MASSC	42	29
Chemoregimen	34	23
NCI, Canada	11	8
Other	6	4
Is the impact of the guides on defensive medicine?		
Increases	74	51
Reduce	37	25
Does not affect	24	16
Indifferent	11	8
The underlying cause of defensive medicine*		
Fear of litigation	94	64
Poor working conditions (patient dense etc.)	71	49
Health policy	69	47
Poor communication with patients	59	40
Burnout syndrome	61	42
Heroism and perfectionism	31	21
Lack of financial motivation	24	16
Administrative pressures	54	37
Expectations of patients and their relatives	68	47
Do you have a case of malpractice?		
Yes	5	3
No	141	97
You have been complained by your patients or their relatives in last 1-year?		

Table 1 continued

Features	n	%
1–5	84	58
6–10	42	29
11 and more	6	4
Do you apply defensive medicine?		
Often positive defensive medicine	33	23
Often negative defensive medicine	21	14
I apply equally to both	11	8
Indifferent	22	15
I do not apply defensive medicine	59	40

NCCN National Comprehensive Cancer Network, ESMO European Society of Medical Oncology, ASCO American Society of Clinical Oncology, MASSC Multinational Association of Supportive Care in Cancer, NCI National Cancer Institute

* Participants were allowed to mark more than one option

using international guidelines. Sixty-four percent ($n = 94$) of physicians reported defensive medicine as the underlying cause fear of prosecution. Interestingly, the most responsive, including poor field conditions in health system, such as intensive outpatient services, was the second cause ($n = 71$, 49 %). Fifty-four percent ($n = 79$) of physicians felt protecting themselves with informed patient consent. Forty-five percent ($n = 65$) noted that this rate applied to defensive medicine practices and 23 % ($n = 33$) noted that this rate applied to positive defensive medicine practices.

Practical approaches to positive and negative defensive medicine

The responses of the physicians indicating their positions on some clinical applications are shown in Table 3. The majority of physicians “sometimes” favored practical approaches to these practices. Questions were also asked in this section to identify underlying positive and defensive medicine practices. The responses to these questions are presented in Table 4. The positive approach to defensive medicine was the most frequently checked by the participants, increasing the inspection or the shortening of the follow-up period (revealed 53 %). However, the high proportion of respondents who believe that the purpose of negative defensive medicine practices is to avoid patient risk was 47 %.

Factors influencing defensive medicine attitudes

It was a significant correlation between positive and negative defensive medicine practice approaches with occupational group, academic tasks, work experience, and

Table 2 Definition of defensive medicine among medical oncologists

Items	Questions*	All Participants (n = 146)	Fellows (n = 34)	Specialists (non academical) (n = 38)	Specialist (academical) (n = 74)	p value
1	To determine the methods of examination and treatment within the medical practice of evidence-based diagnosis and treatment of patients	34 (23)	24 (71)	7 (18)	3 (4)	0.038
2	To determine tests and treatment methods to identify evidence-based medical practices within to be protected from physical reaction or verbal abuse of patients and their relatives	86 (59)	21 (62)	24 (63)	41 (55)	0.218
3	To determine the methods of examination and treatment within the practice of medicine based on evidence to be protected from being sued in the diagnosis and treatment of patients	79 (54)	19 (56)	31 (82)	29 (39)	0.043
4	Examination and treatment methods to identify evidence-based practice within medicine to protect themselves from the administrative investigations	71 (49)	11 (32)	32 (84)	28 (38)	0.041
5	Examination and treatment of patients or their relatives to determine the application within evidence-based medicine to protect themselves from complaints	94 (64)	29 (85)	32 (84)	33 (45)	0.125
6	Examination and treatment methods to identify evidence-based practice within medicine because only concern is to make conscientious medical errors	24 (16)	4 (12)	11 (29)	31 (42)	0.238
7	To determine the patient's diagnosis and treatment methods of examination and treatment within evidence-based medicine because they want to guarantee themselves	46 (32)	19 (56)	15 (40)	12 (16)	0.042
8	Evidence-based medicine in the diagnosis and treatment of patients because they want to guarantee themselves "outside" to determine the methods of examination and treatment	14 (10)	5 (15)	7 (18)	2 (3)	0.045

Bold values are statistically significant ($p < 0.05$)

* Participants were allowed to mark more than one option

workplace (Table 5). Multivariate analysis in positions of public hospitals and private hospitals was identified as an independent risk factor in terms of both positive and negative defensive medicine practices (OR 2.41 95 % CI 1.27–3.93, $p = 0.034$ and OR 2.44 95 % CI 1.59–5.11, $p = 0.032$, respectively) (Table 6).

Discussion

We determined in this study the perceptions and attitudes of and toward defensive medicine practices by medical oncologists. In our survey, we determined the frequency of the use of defensive medicine practices by oncologists as 32 %, and we found that these practice are applied by 65 % of medical oncologists in the positive direction. Additionally, we determined that the defensive medicine practices underlying the causes of the increasing number of complaints (disciplinary sanctions) and the fear of these complaints are caused by physicians' working conditions.

Studdert et al. [13] surveyed different high-risk specialist physicians and found that 93 % of physicians practiced defensive medicine. Moreover, 92 % of physicians avoid high-risk patients or procedures, and excessive

testing was indicated by practicing defensive medicine diagnostic procedures and dispatch trends [13]. The researchers concluded that the most common cause of defensive medicine practices among physicians is the fear of being sued for malpractice. Similarly, a survey by Kant et al. [14] indicated that 33 medical decisions made by emergency specialists cause fears of malpractice even though these decisions are effective and significantly increase the use of diagnostic tests and hospitalization in low-risk patients. The incidence of defensive medicine practices among orthopedic surgeons has been reported as 96 % by Sethi et al. [15]. We determined the rate of defensive medicine practices among physicians in our study and found 32 % of the fear of complaints to the administrative units of the most important conditions underlying this application. When we asked the physicians about the underlying reasons for defensive medicine practices, we observed the maximum response to fear of being sued for malpractice. Cancer patients and their caregivers in Turkey may complain more to administrative manager such as Ministry of Health, Health of Department, Hospital Director, and Dean. One of the most interesting results of our study was that those physicians who do not want to order extra tests, write prescriptions for more drugs, request

Table 3 Experiences of medical oncologists on defensive medicine practice

Questions	Never (n, %)	Rarely (n, %)	Sometimes (n, %)	Quite frequently (n, %)	Nearly always (n, %)
Do you think you want extra tests?	13 (9)	18 (12)	74 (51)	38 (26)	3 (2)
Do you think you prescribe extra medicine?	6 (4)	10 (7)	61 (42)	56 (38)	13 (9)
Do you think you have chemotherapy in stages that are not included in the directories (3 or later)	7 (5)	34 (23)	64 (44)	38 (26)	3 (2)
Have you ever wanted an extra consultation?	12 (8)	31 (21)	67 (46)	35 (24)	1 (1)
Do you think that you are using imaging techniques more often?	6 (4)	41 (28)	72 (49)	24 (17)	3 (2)
Do you think you have used PET/CT scans too often??	5 (3)	32 (22)	67 (46)	39 (27)	3 (2)
Did you ever use an external directory or treatment regimen?	10 (7)	50 (34)	53 (36)	27 (19)	6 (4)
Do you ever avoid high-risk patients?	13 (9)	45 (31)	64 (44)	16 (11)	8 (5)
Do you think that you are protected in cases where patients signed consent forms?	44 (30)	35 (24)	58 (40)	6 (4)	3 (2)
Track your daily practice. To what extent do you apply international guidelines to examination and treatment planning?	5 (3)	10 (7)	32 (22)	39 (27)	60 (41)
Do you think you are applying defensive medicine?*	20 (14)	39 (27)	11 (7)	34 (23)	20 (14)

* Twenty-two of respondents declared that they could not answer this question (indifferent). Therefore, there were 124 participants in this line

Table 4 Definition of positive and negative defensive medicine approaches among medical oncologists

Questions*	All participants (n = 134)	Fellows (n = 34)	Specialists (non academical) (n = 38)	Specialist (academical) (n = 74)	p value
<i>Positive defensive medicine</i>					
Patients intend to deter their medical rights (n, %)	24 (16)	8 (24)	7 (19)	9 (12)	0.141
Medically unnecessary laboratory examinations requested (n, %)	68 (47)	22 (65)	24 (63)	22 (30)	0.045
Medically unnecessary consultations requested (n, %)	61 (42)	21 (62)	23 (61)	17 (23)	0.028
Increases control examinations or shortens follow-up period (n, %)	78 (53)	24 (71)	26 (68)	28 (38)	0.031
Medically unnecessary drugs recommended (n, %)	49 (34)	18 (53)	19 (50)	12 (16)	0.197
Medically unnecessary hospital or intensive care admissions made (n, %)	56 (38)	19 (56)	24 (63)	13 (18)	0.041
The patient's medical problems are intended to prove that much of what is (n, %)	64 (43)	24 (71)	21 (55)	19 (26)	0.035
<i>Negative defensive medicine</i>					
Rejects high-risk procedures and conditions (n, %)	61 (42)	28 (82)	24 (63)	9 (12)	0.021
Refuses invasive procedures (n, %)	51 (35)	24 (71)	21 (55)	6 (8)	0.029
Removes high-risk patients from list (n, %)	69 (47)	26 (77)	22 (58)	21 (28)	0.042

Bold values are statistically significant ($p < 0.05$)

* Participants were allowed to mark more than one option

additional consultations, or order additional radiological examinations tend to avoid high-risk patients. This finding differs from previous surveys of high-risk physicians.

Indeed, surveys of physicians in other areas of medicine exhibited similar results. In a survey of obstetricians and gynaecologists, 59 % avoided diagnosing breast disease

and 54 % avoided treating breast disease [16]. In a survey of neurosurgeons, 45 % avoided high-risk procedures [17].

There have been important advances in the treatment of patients using both medical and interventional procedures [18–23]. Some obstacles in the transport of drugs, financial issues, social characteristics, and the psychological, social and

Table 5 Correlation analysis on positive and negative defensive medicine

	Positive defensive medicine		Negative defensive medicine	
	<i>r</i>	<i>p</i> value*	<i>r</i>	<i>p</i> value*
Age years (> 40vs. < 40)	0.541	0.032*	0.612	0.029*
Gender (Male vs. Female)	0.351	0.141	0.208	0.233
Occupational status (Fellow vs. specialists)	0.641	0.037*	0.459	0.043*
Academic occupation (Yes vs. No))	0.522	0.024*	0.541	0.024*
Experience of work (Years) (> 6 years vs. < 6 years)	0.546	0.018*	0.597	0.031*
Workplace (State Hospital vs. University Hospital)	0.512	0.039*	0.614	0.028*

* A two-tailed *p* value of <0.05 was considered statistically significant

Table 6 Univariate and multivariate analyses on positive and negative defensive medicine

	Positive defensive medicine		Negative defensive medicine	
	Odd ratios (95 % CI)	<i>p</i> value*	Odd ratios (95 % CI)	<i>p</i> value*
Univariate factors				
Age years (>40vs. <40)	1.58 (0.14–2.11)	0.123	1.21 (0.25–3.74)	0.237
Gender (Male vs. Female)	1.44 (0.89–2.17)	0.247	1.19 (0.49–3.74)	0.321
Occupational status (Fellow vs. specialists)	2.47 (1.48–4.17)	0.035*	2.13 (1.77–3.49)	0.041*
Academic occupation (Yes vs. No))	1.78 (1.53–5.18)	0.027*	2.17 (1.18–3.75)	0.034*
Experience of work (Years) (> 6 years vs. < 6 years)	1.69 (0.413–2.17)	0.212	1.13 (0.42–1.48)	0.304
Workplace (State Hospital vs. University Hospital)	2.31 (1.46–3.29)	0.029*	1.79 (1.98–4.15)	0.032*
Multivariate factors				
Workplace (State Hospital vs. University Hospital)	2.41 (1.27–3.93)	0.034*	2.44 (1.59–5.11)	0.032*

CI confidential interval

* A two-tailed *p* value of <0.05 was considered statistically significant

economic characteristics of patients and their relatives pose major problems in the management of cancer patients [24]. Oncology-related data in relation to defensive medical practices could not be gathered. However, Ramella et al. [25] surveyed in 2014, 361 radiation oncologists and found that the rate of physicians who adopted the behavior surveys covering at least one of the defensive medical practices was 75 %.

We compared defensive medicine application frequency in our study with Ramella et al. survey. Ramella et al. [25] study indicated that more than 61.2 % of radiation oncologists “never” wanted additional tests, 85 % of them “never” avoided from high-risk patients, 65.4 % of them “never” prescribed more drugs from the tray of medical indications, and 57.3 % of them “never” referred to other specialists for unnecessary conditions.

Ramella et al. [25] found that young doctors (≤ 40 years old) reported that they were more concerned with old age than with disciplinary sanctions. In our study, defensive medicine physicians observed administrative investigation reservations over the course of 40 years. Ramella et al. [25] found that physicians who had encountered legal problems practiced defensive medicine more often. 72.3 % of

radiation oncologists experienced complications stemming from legal proceedings, which is an important factor in the use of defensive medical practices. In our study, 54 % of physicians who practice defensive medicine indicated that they feared being sued for malpractice, and this fear was found at a higher rate for non-academic experts (82 %, $p = 0.043$). Ramella et al. [25] have compared their study with Italian survey involving 2870 specialists by “Rome Medical Council” [26]. The survey of “Rome Medical Council” [26] is Italian and the number of medical oncologists who participated in the survey could not be determined. However, Ramella et al. [25] declared that 69 % of the surveyed medical oncologists wanted redundant tests, 45 % avoid risky patients, 48 % prescribed more drugs more than required, and 66 % of medical oncologists were referred to other specialists without warrant.

Limitations

The small number of participants can be perceived as a negative aspect of the study. However, the most important

reason for the survey's low participation rate was undesirable credentials of the physicians and their clinical practices, rendering medical practices related to administrative and legal responsibilities of concern. Patient density due to burnout and lack of time, lack of confidence in the survey, and the number of participants may have kept the rate low. Nevertheless, this survey is important in the study of medical oncologists and the clinical practice of defensive medicine approaches.

Conclusions and recommendations

Defensive medicine practices among medical oncologists are common. The most important reasons for such practices are physicians' fear that patients will complain to the administrative manager and fear of litigation stemming from administrative investigations. However, we believe that physicians of state hospital, due to their poor working environments caused by intensive outpatient rates, that defensive medicine is adjusting to these conditions. In particular, we see that the definition of defensive medicine among fellows is unclear. As a result of all these reasons, we have laws related to defensive medicine practices and the provision of training on ethical principles and believe that working conditions should be regulated.

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Conflict of interest None.

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