ORIGINAL ARTICLE

The opinion of Turkish cardiologists on current malpractice system and an alternative patient compensation system proposal: PCS study group

Türkiye'deki kardiyologların mevcut "malpraktis" sistemi ve alternatif "malpraktis" sistem önerisi hakkındaki görüşleri

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ABSTRACT

Objective: Cardiologists participate in the diagnosis and interventional treatment of numerous high-risk patients. The goal of this study was to investigate how the current malpractice system in Turkey influences cardiologists' diagnostic and interventional behavior and to obtain their opinions about an alternative patient compensation system.

Methods: The present cross-sectional study assessed the practice of defensive medicine among cardiologists who are actively working in various types of workplace within the Turkish healthcare system. A 24-item questionnaire was distributed to cardiology residents, specialists, and academics in Turkey in print format, by electronic mail, or via cell phone message.

Results: A total of 253 cardiologists responded to the survey. Among them, 29 (11.6%) had been sued for malpractice claims in the past. Of the cardiologists who had been sued, 2 (6.9%) had been ordered to pay financial compensation, and 1 (3.4%) was given a sentence of imprisonment due to negligence. In all, 132 (52.8%) of the surveyed cardiologists reported that they had changed their practices due to fear of litigation, and 232 (92.8%) reported that they would prefer the new proposed patient compensation system to the current malpractice system. Among the cardiologists surveyed, 78.8% indicated that malpractice fear had affected their decision-making with regard to requesting computed tomography angiography or thallium scintigraphy, 71.6% for coronary angiography, 20% for stent implantation, and 83.2% for avoiding treating high-risk patients.

Conclusion: The results of this survey demonstrated that cardiologists may request unnecessary tests and perform unneeded interventions due to the fear of malpractice litigation fear. Many also avoid high-risk patients and interventions. The majority indicated that they would prefer the proposed alternative patient compensation system to the current malpractice system.

ÖZET

Amaç: Kardiyologlar birçok riskli hastanın teşhis, tedavi ve girişimsel tedavisiyle uğraşmaktadırlar. Bu çalışmada Türkiye'deki mevcut "malpraktis" sisteminin kardiyologların tanı ve tedavi yaklaşımlarını nasıl etkilediğini ve önerdiğimiz yeni hasta tazminat sistemine yaklaşımlarını inceledik.

Yöntemler: Bu kesitsel çalışmada Türk sağlık sisteminin farklı seviyelerinde çalışan kardiyologların mesleki risk algılarının uygulamalarına etkisini araştırma amacıyla 24 soruluk bir anketi asistan, uzman ve öğretim üyelerine elektronik posta, basılı evrak ve cep telefonu mesajı ile gönderildi.

Bulgular: Ankete toplam 253 kardiyolog cevap verdi. Bunların 29'una (%11.6) geçmişte malpraktis talepleri için dava açılmıştı. Dava edilen kardiyologların 2'sine (%6.9) maddi tazminat talebinde bulunuldu, 1'ine (%3.4) ihmal nedeniyle hapis cezası verildi. Bunun yanında 132 (%52.8) kardiyolog "malpraktis" korkusu nedeni ile pratiklerinde değişiklik yaptıklarını bildirmekteydi. Ayrıca 232 (%92.8) kardiyolog önerdiğimiz hasta tazminat sistemini tercihe değer buluyordu. Kardiyologların %78.8'i bilgisayarlı tomografik anjiyografi (BTA) veya perfüzyon sintigrafisi, %71.6'sı koroner anjiyografi, %20 'si stent implantasyonu, %83.2'si ise yüksek riskli hastalardan kaçınma kararlarında malpraktisten kaçınmanın etkili olduğu kanaatindeydi.

Sonuç: "Malpraktis" korkusu kardiyologlarda yüksek oranlarda gereksiz test isteme, girişim yapma veya yüksek riskli hastalardan kaçınma eğilimi yaratmaktadır. Önerdiğimiz yeni "malpraktis" sistemi çalışmaya katılan kardiyologların büyük çoğunluğu tarafından mevcut sisteme tercih edilir bulunmuştur.

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Physicians and patients have begun to realize that Turkish medical law, which introduced high medical malpractice compensation fines and has sentenced some physicians to prison for unintentional negligence, is negatively affecting medical professionals and the health system. If the system continues on this track, physicians' fear of malpractice litigation, defensive medical practices, healthcare costs, and mortality rates are all expected to increase.

Abbreviations:

CA	*Coronary angiography*
CTA	*Computed tomography angiography*
PCS	*Patient compensation system*
ThSc	*Thallium scintigraphy*
TMA	*Turkish Medical Association*
TPC	*Turkish Penal Code*
TSC	*Turkish Society of Cardiology*

Turkey employs a tort system that includes not only proven, but also presumed error. There are clauses providing for the compensation of both economic and noneconomic damages. Liability is joint and several. Since the introduction of compulsory liability insurance for medical malpractice for all physicians in July 2010, physicians and dentists are required to be covered by professional liability insurance. Physicians working at public or private institutions pay half of their insurance premiums and the institution pays the rest. Doctors working in private practice must pay the entire premium themselves.

In Turkey, the Regulations on Patient Rights were first published in the Official Gazette of the Republic of Turkey in 1998. In 2014, an updated final form was released. The regulations define the rights of patients and the rules they should follow. Furthermore, the document includes regulations on patient communication and the functioning of patient rights councils.[1,2] In addition to the Regulations on Patient Rights, the Turkish Penal Code (TPC) created other regulations in 2005. The 83rd law in the TPC states that an "individual who kills by act of omission may be sentenced to imprisonment for 10 to 25 years." The 22nd law in the TPC defines the penalties for crimes of unintentional and intentional negligence.[3] The new Turkish Criminal Code Law No. 5237 includes specific terms defining physicians' liabilities regarding malpractice. New terms in the Turkish Criminal Code, such as "probable negligence" and "deliberate negligence," brought uncertainties to medical practice and led physicians to feel anxious about it.

We devised a questionnaire-based study to assess Turkish cardiologists' opinions on current malpractice enforcement and its effect on the practice of defensive medicine. Defensive medicine is defined as establishing diagnoses that would not alter patient care, and performing unnecessary testing and treatments.[4] The survey also asked cardiology colleagues if they would prefer our alternative patient compensation system (PCS).

METHODS

Design of the sample and survey

A questionnaire was created and refined based on feedback from representatives of medical specialty societies, medical societies, insurers, and lawyers in Turkey. The institutional review board at Dokuz Eylul University School of Medicine approved the research (2015/256). The purpose of this study was disclosed to the participants prior to beginning the survey. Completion and return of the questionnaire constituted evidence of informed consent. Cardiologists were invited through personal contacts, e-mail, and a telephone database obtained from drug companies. The survey included questions on basic domains that have been found to influence defensive practices and opinion about an alternative malpractice system. The survey took an average of about 10 minutes to complete. The survey respondents consisted of cardiologists in different practice settings, including state hospitals, military hospitals, university hospitals, and private practice.

Sample

Self-reported questionnaires were completed using 3 different methods: e-mail, cell phone short messaging system, or a printed form completed by cardiologists attending the 31st Turkish Society of Cardiology (TSC) national meeting.

Survey questionnaire and administration

A 24-question survey comprising previously validated questions was compiled from previous studies and finalized after discussion with cardiologists who were members of the team that created the PCS proposal.[5,6] The revised questionnaire was designed to provide information about practice decisions, liability insurance, experience with malpractice claims, demographics, and opinion on the newly proposed PCS. Respondents could identify themselves by name or remain anonymous if they had any concern about

confidentiality. Respondents were asked to rate how frequently concerns about malpractice liability led them to alter their usual practice patterns and attitude using a 4-point scale (never, rarely, sometimes, often) (Table 1).

Statistical analysis

The data were analyzed using the IBM SPSS Statistics for Windows, Version 22.0 (IBM Corp., Armonk, NY, USA) statistical software package. Descriptive statistics were presented as frequency percentages with mean and SD. The perceptions of defensive medicine practiced by groups defined as respondents who had or had not been sued for malpractice were compared using Pearson's chi-square test.

Proposal for a new patient compensation system for Turkey

We examined several different malpractice systems and created a proposal largely similar to the Mexican malpractice system.[7] The PCS includes an official administrative body formed by the Turkish Medical Association (TMA) and the Turkish Ministry of Health. Patients or their lawyers may apply to the PCS to request an investigation, a determination, and compensation for damages. The PCS board is comprised

Table 1. The survey questions

1. Do you give consent for the use of your answers anonymously in a scientific study?
2. Name, surname (not required)
3. Age
4. Gender
5. E-mail address (not required)
6. How long have you been in cardiology practice?
7. Institution (private hospital/state hospital/state training and research hospital (TRH)/ private university hospital /state university hospital/private physician office)
8. Your academic status (resident/specialists/academician)
9. Have you ever appeared in court due to malpractice litigation?
10. If you have appeared in court due to malpractice litigation, how many times?
11. Were you given a financial penalty in court for malpractice litigation?
12. Were you given a judgment of imprisonment in a court for malpractice litigation?
13. Did you get any support from your institution of employment during the litigation process?
14. Did you get any support from the Turkish Society of Cardiology (TSC) during the litigation process?
15. Did you get any support from the Turkish Medical Association (TMA) during the litigation process?
16. Did your court appearance affect your medical practice decision process?
17. Do you request computed tomography angiography (CTA) or thallium scintigraphy (ThSc) solely to avoid malpractice litigation? (never, rarely, sometimes, often)
18. Do you perform or request coronary angiography (CA) solely to avoid malpractice litigation? (never, rarely, sometimes, often)
19. Do you perform coronary stenting solely for avoidance of malpractice litigation? (never, rarely, sometimes, often)
20. Do you avoid treating or performing an intervention for high-risk patients solely to avoid malpractice litigation? (never, rarely, sometimes, often)
21. Do you request additional consultations solely to avoid malpractice litigation? (never, rarely, sometimes, often)
22. Have you made any change to your daily cardiology practice to avoid high-risk patients in last 3 years? (never, rarely, sometimes, often)
23. Would you prefer that the current malpractice system of Turkey be changed to the proposed patient compensation system (PCS)?
24. Would you like to express any opinion about our newly proposed patient compensation system?

of physicians, nurses, hospital administrators, and other healthcare professionals with a rotational membership. All medical records submitted are to be evaluated by the PCS board, and if the patient suffered avoidable medical damage, the board would approve payment of compensation within 6–9 months of the decision. According to the proposal, a PCS fund for payments is sustained through fixed payments from all physicians, regardless of the number of claims, and physicians would not need to purchase medical malpractice insurance because they could not be sued; the PCS would be the only avenue to seek compensation. The compensation amounts to be paid by the PCS would be fixed, and physicians' costs would remain stable, in contrast to medical malpractice insurance premiums. In the PCS proposal, there is no claim for a physician to defend against; there would be no depositions, no cross-examination, no defense lawyer, and no financial loss incurred due to a long court case. Physicians would not need to practice defensive medicine and would be free to exercise their professional judgment. Human and financial resources of the healthcare system could be saved without causing harm to patients through the application of good clinical judgment.[8]

RESULTS

A total of 253 cardiologists responded to the questionnaire. Only 69 physicians (28%) provided their name; the rest completed the questionnaire anonymously. Three cardiologists did not allow their results to be published. As a result, the statistical analyses were generated from the data of 250 cardiologists. Table 2 summarizes the age, gender distribution, duration of cardiology practice, and specialty status. Most of the cardiologists were male (78.4%). Fifteen percent of the cardiologists were fellows, most were working as cardiology specialists (68.4%), and 16.4% were associate professors or professors. The distribution of respondents according to the type of work environment was as follows: no cardiologist from private office practice, 37 cardiologists from a private hospital (14.8%), 24 cardiologists from a private university hospital (9.6%), 45 cardiologists from a state university hospital (18%), 58 cardiologists from a state training and research hospital (23.2%), and 86 cardiologists from a state hospital (34.4%) (Table 2).

In all, 29 cardiologists (11.6%) had been sued for malpractice in the past. Of those, 2 (6.9%) were or-

Table 2. Demographics of the cardiologists enrolled in the study

	n	%	Mean±SD
Age, years			36.31±8
Duration of cardiology practice, years			8.45±6.45
Gender			
Male	196	78.4	
Female	53	21.6	
Academic status			
Cardiology fellow	38	15.2	
Cardiology specialist	171	68.4	
Associate professor	24	9.6	
Professor	17	6.8	
Distribution according to workplace			
Private practice	0	0	
Private hospital	37	14.8	
Private university hospital	24	9.6	
State university hospital	45	18	
State training and research hospital	58	23.2	
State hospital	86	34.4	

SD: Standard deviation.

dered to pay financial compensation, and 1 (3.4%) was given a sentence of imprisonment for negligence. The cardiologists who had been sued appeared in court at total of 53 times (minimum 1, maximum 6 times per person) and the average number of court appearances was 1.83. Five of the sued cardiologists (17.2%) reported that their hospital supported them during the court process. Only 1 cardiologist who had been sued (3.4%) received help from the TSC. Three of the sued cardiologists (10.3%) received help from the TMA. Of the cardiologists who had been sued, 26 (89.6%) reported that they changed their medical practice decision-making process after appearing in court.

When cardiologists were asked if they request computed tomography angiography (CTA) or thallium scintigraphy (ThSc) solely to avoid malpractice litigation, 53 responded never (21.2%), 71 responded rarely (28.4%), 98 responded sometimes (39.2%), and 28 responded often (11.2%). When they were asked the same question with respect to performing or requesting coronary angiography (CA), 71 responded never (28.4%), 84 responded rarely (33.6%), 83 responded sometimes (33.2%), and 12 responded often (4.8%). The cardiologists were also asked if the fear of malpractice litigation influenced their decision to perform coronary stenting, and 200 responded never (80%), 22 responded rarely (8.8%), 24 responded sometimes (9.6%), and 4 responded often (1.6%). When asked if they avoid treating or undertaking an intervention with high-risk patients in order to avoid malpractice litigation, 42 responded never (16.8%), 69 responded rarely (27.6%), 110 responded sometimes (44%), and 29 responded often (11.6%). Respondents were also asked if

Table 3. Frequency of computed tomography angiography, thallium scintigraphy, coronary angiography, coronary stenting, high-risk patient avoidance, and unnecessary consultation requests by cardiologists enrolled in the study solely to avoid malpractice litigation

	Never	Rarely	Sometimes	Often	Total
	n (%)	n (%)	n (%)	n (%)	
Computed tomography angiography or thallium scintigraphy	53 (21.2)	71 (28.4)	98 (39.2)	28 (11.2)	250 (100)
Coronary angiography	71 (28.4)	84 (33.6)	83 (33.2)	12 (4.8)	250 (100)
Coronary stenting	200 (80)	22 (8.8)	24 (9.6)	4 (1.6)	250 (100)
Treatment or intervention for high-risk patients	42 (16.8)	69 (27.6)	110 (44)	29 (11.6)	250 (100)
Consultations	27 (10.8)	54 (21.6)	110 (44)	59 (23.6)	250 (100)

Table 4. Frequency of computed tomography angiography, thallium scintigraphy, coronary angiography, coronary stenting, high-risk patient avoidance, and unnecessary consultation requests by cardiologists according to malpractice suit experience

	Never		Rarely		Sometimes		Often		*p**
	Nonsued	Sued	Nonsued	Sued	Nonsued	Sued	Nonsued	Sued	
Computed tomography angiography or thallium scintigraphy, n (%)	49 (22.2)	4 (13.8)	64 (29)	7 (24.1)	84 (38)	14 (48.3)	24 (10.9)	4 (13.8)	0.58
Coronary angiography, n (%)	64 (29)	7 (24.1)	74 (33.5)	10 (34.5)	71 (32.1)	12 (41.4)	12 (5.4)	0 (0)	0.48
Coronary stenting, n (%)	177 (80.1)	23 (79.3)	21 (9.5)	1 (3.4)	20 (9)	4 (13.8)	3 (1.4)	1 (3.4)	0.5
Treatment or intervention for high-risk patients, n (%)	38 (17.2)	4 (13.8)	60 (27.1)	9 (31)	98 (44.3)	12 (41.4)	25 (11.3)	4 (13.8)	0.92
Consultations, n (%)	21 (9.5)	6 (20.7)	50 (22.6)	4 (13.8)	100 (45.2)	10 (34.5)	50 (22.6)	9 (31)	0.15

*Chi Square.

they request different consultations so as to avoid malpractice litigation and 27 responded never (10.8%), 54 responded rarely (21.6%), 110 responded sometimes (44%), and 59 responded often (23.6%) (Table 3).

In response to a question asking if the cardiologists had made any change to their daily cardiology practice to avoid high-risk patients in last 3 years, 132 cardiologists (52.8%) reported that they had changed their practice due to the fear of litigation.

A large majority, 232 of the surveyed cardiologists (92.8%), reported that they would prefer the implementation of the proposed PCS to the current malpractice system of Turkey.

Comparison of sued and nonsued cardiologist groups

There was no statistically significant difference in the gender distribution of sued and nonsued cardiologists: male 24 (82.8%) *vs.* male 172 (77.8%), respectively (p=0.64). The distribution of academic standing in the 2 groups also revealed no significant difference: cardiology fellows 5 (17.2%) *vs.* 33 (14.9%), cardiology specialists 18 (62.1%) *vs.* 153 (69.2%), associated professors 3 (10.3%) *vs.* 21 (9.5%), professors 3 (10.3%) *vs.* 14 (6.3%) (p=0.82). Similarly, there was no significant difference in terms of type of workplace between the groups of cardiologists who had been sued and those who had not: private hospital 8 (27.6%) *vs.* 29 (13.1%), private university hospital 3 (10.3%) *vs.* 21 (9.5%), state university hospital 6 (20.7%) *vs.* 39 (17.6%), state training and research hospital 5 (17.2%) *vs.* 53 (24%), state hospital 7 (24.1%) *vs.* 79 (35.7%), respectively (p=0.26). The responses from the 2 groups did not differ significantly with respect to performing coronary stenting; high-risk patient avoidance; or unnecessary CTA, ThSc, CA, or consultation requests (Table 4). Furthermore, the cardiologists who had been sued and those who had not reported a change in practice behavior in last 3 years that was not significantly different: 18 (62.1%) *vs.* 114 (51.6%), respectively (p=0.33). Finally there was no significant difference between the 2 groups in support for replacing the current malpractice system with the proposed PCS: 27 (93.1%) *vs.* 205 (92.8%) (p=1).

DISCUSSION

There are an estimated 1800 cardiologists in Turkey and we reached 253 (14.1%).[9] Our results showed that a significant number of cardiologists surveyed (11.6%) had been sued for malpractice claims. Only about 10% of the sued cardiologists were fined. Interestingly, support from hospitals, the TSC, and the TMA for the sued physicians was very low. About 90% of the sued physicians reported that they changed their medical decision-making process after appearing in court.

Defensive medicine is a deviation from sound medical practice that is induced mainly by a threat of malpractice suit.[10] In a widely referenced report, the cost of defensive medicine in the USA is estimated to be $55.6 billion, which is equivalent to 2.4% of the healthcare expenditure in 2008.[10] Unnecessary diagnostic tests, consultations, and avoidance of high-risk patients are the most common forms of defensive medicine.[11] We have limited studies, but some signs warn us that Turkey will face the same consequences long-seen in the USA as a result of medical malpractice laws. Yilmaz et al. stated that since this law was adopted, there has been a significant increase in defensive medical practices of physicians in surgical specialties.[12] According to 2010 Organisation for Economic Co-operation and Development (OECD) statistics, the average number of physician visits is 4/person/year in the USA, while it is 9/person/year in Turkey. The average number of magnetic resonance imaging requests in 2011 in OECD countries was 46.6 per 1000 persons, and it is 67.2 per 1000 persons in Turkey, which is 50% higher.[13] It is not necessary for Turkey to go through the same processes as seen in the USA for an additional 10 to 20 years and face similar studies, discussions, high healthcare costs, and patient safety issues due to defensive medicine.

Our study showed that in our sample of cardiologists, 78.8% performed CTA or ThSc, 71.6% performed coronary angiography, and 20% implanted stents at different frequencies solely because they fear a malpractice claim. Extra diagnostic and interventional procedures increase healthcare costs. According to the Ministry of Finance Budget Justification for 2013 report, public pharmaceutical and curative health services expenditures increased dramatically from TL 17.6 billion per year to TL 47.7 billion per year between 2005 and 2012 in Turkey.[14]

When asked in our study whether they avoid treating or undertaking an intervention with high-risk patients solely for the avoidance of malpractice litiga-

tion, 83.2% of the cardiologists surveyed confirmed that they did, with different frequencies. There are 2 types of defensive medicine. Positive defensive medicine is expressed in the increased use of resources, both to reduce the risk of receiving a complaint and to increase doctors' ability to defend one; this could be called "augmented" or "extra" medical practice. Negative defensive medicine refers to a withdrawal of medical services; for example, neurosurgeons may avoid certain patients or surgical procedures if they believe these place them at greater risk for litigation.[15,16] Kachalia et al. have suggested that the malpractice law could create a vicious circle for physicians: "The more their colleagues practice defensive medicine, the more legally vulnerable they become if they do not."[17]

When the sued and nonsued cardiologists were compared in this study, there was no significant difference in their defensive practice patterns. Gender, academic status, and workplace distribution were also comparable between the 2 groups. The similarity in defensive practices between the group that had been sued and the nonsued group may be explained by the small number of cardiologists sued and minor differences that were not statistically significant due to the small sample size. Another explanation may be that defensive practices are very widely applied, irrespective of court appearance.

There are a variety of systems in place in different countries for compensation arising from the provision of medical services. When we asked whether the cardiologists would prefer the proposed PCS to the current litigation-based practice, 92.8% responded that they would prefer the new system. This proposed PCS was recently made public and opened to further discussion.[8]

Our study has several limitations, 1 of which is the small number of respondents. Although we tried to reach all of the cardiologists in Turkey, a limited number completed the questionnaire. Hence, it may not be possible to generalize the results to all cardiologists in the country. However, when the diverse centers and academic distribution of the respondents are taken consideration, this national study has achieved the best possible current insight into the practice of defensive medicine among cardiologists in Turkey. It should be noted that our data are self-reported, and therefore may be inaccurate. There is the difficulty of distinguishing between liability-related motivators and other factors that influence clinical decision-making.[18] Self-reports of defensive medicine may be biased, and doctors may overstate the frequency of performing defensive medicine. By its very nature, the unconscious practice of defensive medicine will not be reported by doctors.

Conclusion

The fear of litigation and loss of reputation are the major reasons for the practice of defensive medicine. Perhaps the greatest irony is that defensive medicine may be counterproductive and might actually increase the malpractice risk. Our survey results showed that the practice of cardiology is substantially and negatively influenced by the fear of malpractice litigation in this country, as in others. Therefore, like the majority of the cardiologists who participated in this research, we think that the related laws and regulations should be reconsidered and evaluated. Our proposal on this subject seems to be a noteworthy and important option based on the survey results.

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Keywords: Cardiology; defensive medicine; malpractice; patient compensation system.

Anahtar sözcükler: Kardiyoloji; defansif tıp; malpraktis; hasta tazminat sistemi.