



DEFENSIVE MEDICINE;

TO DETERMINE THE PREVALENCE OF DEFENSIVE MEDICINE AMONG DOCTORS OF CIVIL HOSPITAL AND JINNAH HOSPITAL KARACHI AND TO INTRODUCE IT TOWARDS THE COMMUNITY OF DOCTORS

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INTRODUCTION

Defensive medicine includes tests and procedures ordered by physicians principally to reduce perceived threats of medical malpractice liability. The practice is commonly assumed to increase health care costs¹. Both residents and experienced physicians often complain of spending too much of their time ordering tests and administering medical procedures aimed at defending themselves from potential litigation³. It has been reported that annual costs associated with defensive medicine range between \$650 - 850 billion which means that \$1 out of every \$4 spent on health care is associated with procedures and tests ordered by doctors who are concerned about defensive medicine².

This shows that the practice of defensive medicine has great impact on economy. The most crucial

ABSTRACT... Objective: To determine the prevalence of defensive medicine among doctors of Civil Hospital and Jinnah Hospital Karachi and to introduce it towards the community of doctors. **Material And Methods:** 200 doctors from different wards of Civil Hospital Karachi and Jinnah Hospital Karachi played crucial role in filling of Performa which was especially designed for this research. **Study Design:** Cross sectional study. **Site of Study:** Civil and Jinnah Hospital Karachi. **Duration:** January 01, 2013 to December 31, 2013. **Results:** 47.9% doctors already knew about defensive medicine while 52.1% didn't. 40.7% doctors avoid invasive procedures while 50.3% don't. 92.4% of doctors care for high risk patients while 7.6% avoid caring for them. 109 out of 190 doctors agree and 30 doctors strongly agree about the practice of defensive medicine, 34 doctors are neutral and the rest of them disagree with its practice. Mostly ordered tests are CBC 78.9%, urine D/R 3.2%, 1.1% stool D/R, 1.6% MRI, 2.2% CT scan, 1.1% UCE, 2.7% blood cultures, 0.5% LFTs 9.1% other tests and the doctors with experience of 10 or 15 years are found ordering only CBC mostly. **Conclusions:** The conclusion obtained from the results shows that most of the participants were experienced doctors but many of them were unaware of the defensive medicine and in spite of that too great number of doctors strongly believe in its practice. Majority of the doctors were found caring for high risk patients. However the prevalence and practice of defensive medicine reduced among doctors having experience of more than 5 years.

Key words: Defensive medicine, doctors, invasive procedure, laboratory investigations

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aim lying behind conducting this research was to estimate the ratio of practice of defensive medicine to develop the awareness among doctors about practice of defensive medicine, to measure the burden on economy due to practice of defensive medicine in Karachi. Furthermore, a study conducted by Carolyn shows that more than 90 percent of physicians reported practicing positive defensive medicine in the past 12 months; unnecessary imaging tests accounted for 43 percent of these actions. More than 92 percent of surgeons reported ordering unnecessary tests to protect themselves. This is how unnecessary tests and treatments add financial burden on patients. Some more researches even prove them like another research study by Vanderbilt University Researchers estimates that U.S. Orthopedic surgeons create approximately \$2 billion per year in unnecessary health care costs through the

practice of defensive medicine⁵. Whereas Myth in one of his article reported that the defensive medicine may be practiced in specific clinical situations, the findings are limited and cannot be generalized to estimate the prevalence and costs of defensive medicine nationwide⁵. While in his research he has also quoted that CBO believes that savings from reducing defensive medicine would be very small⁶.

In this research we mainly applied our effort to measure the area occupied by the practice of defensive medicine in economy and to find out its increment in circle day by day. For that we invited the doctors lying in age group above 35 so they possess a keen experience of more than 10 years in the field of medicine and at least 5 years of experience in their respective field and are dealing with more than 50 patients per day. We also tried to specify the mostly diseased functions of body on which our doctors being a physician spend millions every year for getting their tests done and to our level best indicated the most commonly practised tests among our general practitioners. To some extent we will bring the attitude of doctors towards high risk patients in tertiary care unit and their perception about practising defensive medicine when they are doing it themselves or not.

MATERIAL AND METHODS

200 doctors from different wards of Civil Hospital Karachi and Jinnah Hospital Karachi played crucial role in filling of Performa which was especially designed for this research.

Setup

This study was conducted in Civil Hospital Karachi (CHK) and Jinnah Hospital Karachi (JPMC). Our chief participants/partakers were middle aged doctors above 35 years of age belonging mainly to medical departments. The exclusion criterion holding the doctors lying below the age of 35 or are designated as House Officers or Post Graduates while the inclusion criterion included the doctors above the age of 35 and should be working at least as RMOs in their respective field and should be holding a minimum experience of

5 years. Session of performa filling lasted for 10 months from January 2013 to October 2013 and pre-test of 10 performa's was done to visualize the perception and understanding of participants filling performa. Each performa had written, attached consent with it while an oral consent was also obtained before filling of performa. The topic of research and every question was well explained to every participant.

Study Design

Cross sectional study.

Statistical Analysis

Statistical analysis was carried out using SPSS Software version 16.0.

RESULTS

Table-I shows that a total 190 doctors participated in whom 76 were RMOs, 11 were Registrars, 20 were Assistant Professors, 8 were Associate Professors, 63 were Post graduates and 9 were House Officers. It also shows the frequency distribution of doctors who know or don't know about defensive medicine so the results showed total 47.9%(91) doctors knew about defensive medicine among them were 56%(42) RMOs, 72.7%(8) Registrars, 65%(13) Assistant Professors, 87.5%(7) Associate Professors, 75%(3) Professors, 15.9%(8) House Officers while 52.1%(99) doctors in whom 40%(33) RMOs, 27.3%(3) Registrars, 35.0%(7) Assistant Professors, 12.5%(1) Associate Professors, 25.0%(1) Professor, 84.1%(53) Post Graduates and 11.1%(1) House Officer heard about defensive medicine for the first time.

Table-II shows frequency distribution of doctors avoiding or not avoiding invasive procedures. Total of 189 doctors participated in whom 40.7%(77) doctors are avoiding invasive procedures while 59.3%(112) are preferring invasive procedures for their diagnosis, among them 50%(37) RMOs, 45.5%(5) Registrar, 60%(12) Assistant Professors, 50%(4) Associate Professors, 25%(1) Professor, 21.9%(14) Post Graduates and 50%(4) House Officers are avoiding invasive procedures whereas 50%(37) RMOs, 54.5%(6) Registrars,

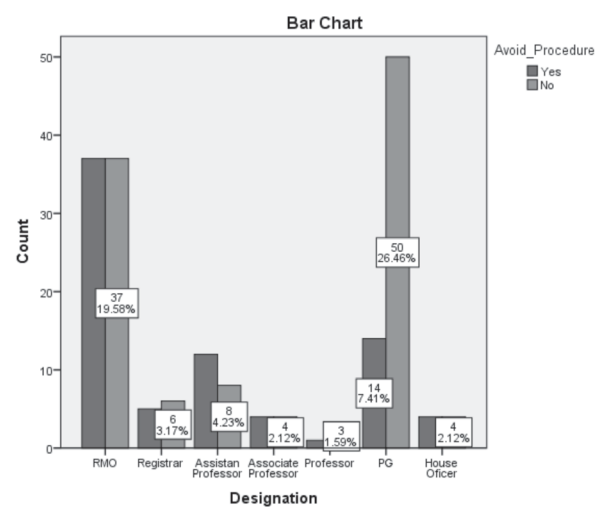
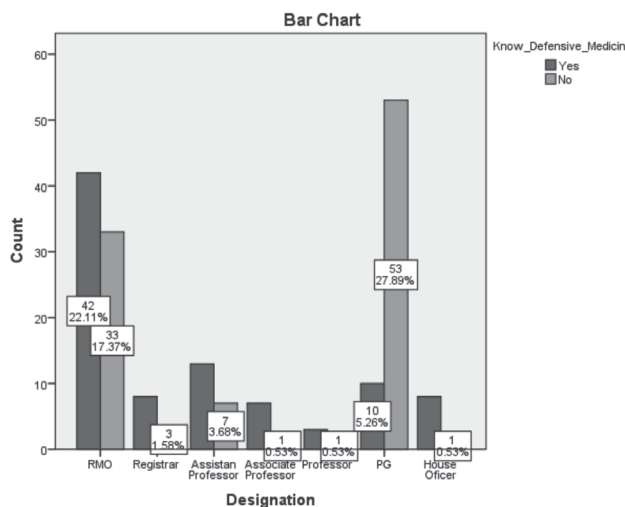
Knows Defensive Medicine					
					Total
			Yes	No	
Designation	RMO	Count	42	33	75
		% within Designation	56.0%	44.0%	100.0%
	Registrar	Count	8	3	11
		% within Designation	72.7%	27.3%	100.0%
	Assistant Professor	Count	13	7	20
		% within Designation	65.0%	35.0%	100.0%
	Associate Professor	Count	7	1	8
		% within Designation	87.5%	12.5%	100.0%
	Professor	Count	3	1	4
		% within Designation	75.0%	25.0%	100.0%
	PG	Count	10	53	63
		% within Designation	15.9%	84.1%	100.0%
	House Officer	Count	8	1	9
		% within Designation	88.9%	11.1%	100.0%
Total		Count	91	99	190
		% within Designation	47.9%	52.1%	100.0%

Table-I.

Avoid Procedure					
					Total
			Yes	No	
Designation	RMO	Count	37	37	74
		% within Designation	50.0%	50.0%	100.0%
	Registrar	Count	5	6	11
		% within Designation	45.5%	54.5%	100.0%
	Assistant Professor	Count	12	8	20
		% within Designation	60.0%	40.0%	100.0%
	Associate Professor	Count	4	4	8
		% within Designation	50.0%	50.0%	100.0%
	Professor	Count	1	3	4
		% within Designation	25.0%	75.0%	100.0%
	PG	Count	14	50	64
		% within Designation	21.9%	78.1%	100.0%
	House Officer	Count	4	4	8
		% within Designation	50.0%	50.0%	100.0%
Total		Count	77	112	189
		% within Designation	40.7%	59.3%	100.0%

Avoid Risk					
		Count	Yes	No	Total
			% within Designation	% within Designation	
Designation	RMO	Count	6	69	75
		% within Designation	8.0%	92.0%	100.0%
	Registrar	Count	2	9	11
		% within Designation	18.2%	81.8%	100.0%
	Assistant Professor	Count	2	18	20
		% within Designation	10.0%	90.0%	100.0%
	Associate Professor	Count	1	5	6
		% within Designation	16.7%	83.3%	100.0%
	Professor	Count	0	4	4
		% within Designation	0.0%	100.0%	100.0%
	PG	Count	0	64	64
		% within Designation	0.0%	100.0%	100.0%
	House Officer	Count	3	6	9
		% within Designation	33.3%	66.7%	100.0%

Table-III



40%(8) Assistant Professors, 50%(4) Associate Professors, 75%(3) Professors, 78.1%(50) Post Graduates and 50% House Officers are ordering invasive procedures.

Designation * avoid_risk

Table-III shows frequency distribution of doctors avoiding high risk patients. Out of 189 doctors only 7.4%(14) doctors are found avoiding care for high risk patients while 92.6%(175) doctors don't and so among them are 8%(6) RMOs, 18.2%(2)

Registrar, 10%(2) Assistant Professors, 16.1%(1) Associate Professor, 0%(0) Professor, 0%(0) Post Graduates and 33.3%(3) House Officers admitted that. they avoid taking care of high risk patients whereas considering total ratio 92%(69) RMOs, 81.8%(9) Registrar, 90%(18) Assistant Professors, 83.3%(5) Associate Professors, 100%(4) Professors, 100%(64) Post Graduates and 66.7%(6) House Officers prefer taking care of high risk patients.

Practicing_defensive_medicine * Know_Defensive_Medicine Crosstabulation					
			Know_Defensive_Medicine		Total
			Yes	No	
Practicing_defensive_medicine	SA	Count	16	14	30
		% within Practicing_defensive_medicine	53.3%	46.7%	100.0%
	A	Count	44	65	109
		% within Practicing_defensive_medicine	40.4%	59.6%	100.0%
	N	Count	22	12	34
		% within Practicing_defensive_medicine	64.7%	35.3%	100.0%
	DA	Count	12	0	12
		% within Practicing_defensive_medicine	100.0%	0.0%	100.0%
	SDA	Count	4	1	5
		% within Practicing_defensive_medicine	80.0%	20.0%	100.0%
	Total	Count	98	92	190
		% within Practicing_defensive_medicine	51.6%	48.4%	100.0%

Table-IV.

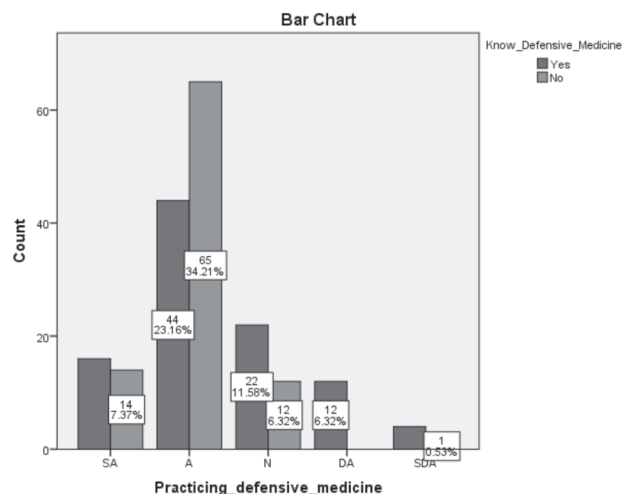
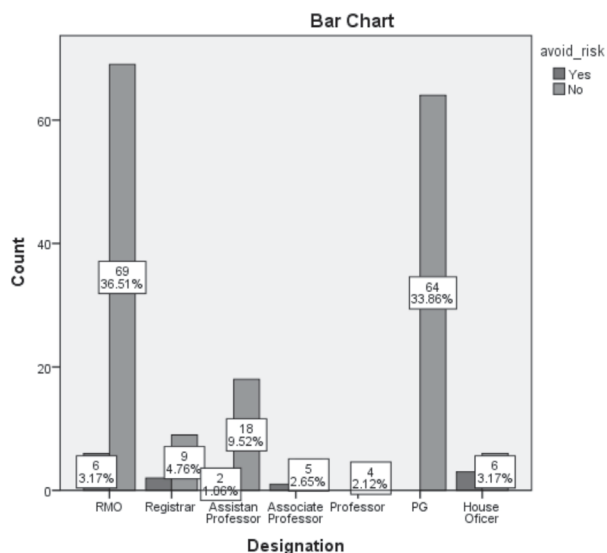


Table IV. Shows the frequency distribution of doctors who believe or not in practising defensive medicine. Among them 51.6% of doctors knew about defensive medicine while 48.4% didn't. Out of 189 doctors 30 strongly agree in its practice in whom 53.3%(16) doctors already knew about defensive medicine while 46.7%(14) didn't. Out of 109 who agree in practice of defensive medicine 40.4%(44) knew about it while 59.5%(65) didnt

know about this term. Out of 34 who are neutral about defensive medicine practice 4.7%(22) knew about it while 35.3%(12) didn't know. 12 doctors disagree for defensive medicine practice and all of them 100%(12) already knew about it. 5 doctors strongly disagree in its practice among them 80%(4) knew about defensive medicine while 20%(1) didn't know.

Practicing since (Knows Defensive Medicine)					
			Know_Defensive_Medicine		Total
			Yes	No	
Practicing_since	5 years	Count	60	62	122
		% within Practicing_since	49.18%	50.81%	100.0%
	10 years	Count	24	26	50
		% within Practicing_since	48.0%	52.0%	100.0%
	15 years	Count	4	4	8
		% within Practicing_since	50.0%	50.0%	100.0%
	> 15 years	Count	7	3	10
		% within Practicing_since	70.0%	30.0%	100.0%
Total		Count	95	95	190
		% within Practicing_since	50.0%	50.0%	100.0%

Table-V.

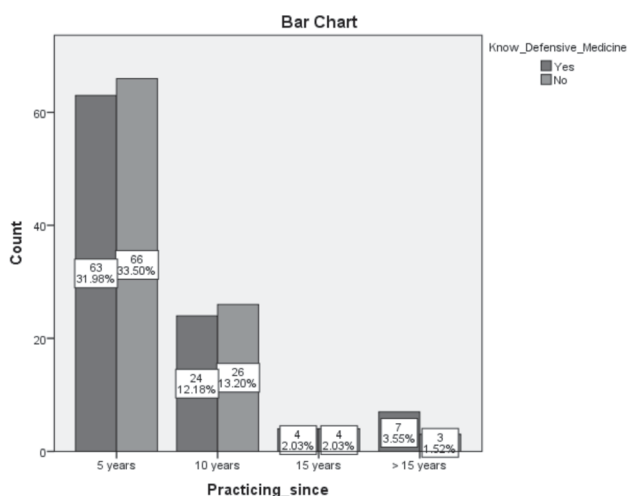


Table-V Shows the frequency distribution regarding work experience of doctors. There were total 190 doctors 50%(95) knew about defensive medicine and 50%(95) didn't know. 122 doctors had work experience of 5 years but just 49.18%(60) had heard of defensive medicine whereas 50.8%(62) did not hear, 50 doctors have been working for 10 years but just 48%(24) knew about defensive medicine 52%(26) didn't hear about it before, 8 doctors were working for 15 years and among them 50%(4) were aware of defensive medicine while 50%(4) were not, 10 doctors had experience of more than 15 years and 70%(7) of them knew about defensive medicine and 30%(3) did not know.

Table-VI shows the frequency distribution of most commonly ordered investigations with respect to the work experience of doctors. Total 189 doctors participated among them 78.9%(146) order Complete blood count (CBC), 3.2%(6) order Urine Detailed report (D/R), 1.1%(2) order stool D/R, 1.6%(3) order MRI, 2.2%(4) order CT scan, 1.1%(2) order Urea Creatinine Electrolyte (UCE), 2.7%(5) order Blood cultures, 0.5%(1) order Liver Function Test (LFT) and 9.1%(17) order some other investigations as well. Among them 129 doctors are those having work experience of 5 years and 81.6%(98) out of 129 order CBC, 4.8%(6) order urine D/R, 1.6%(2) order stool D/R, 0.8%(1) MRI, 1.6%(2) CT scan, 1.6%(2) UCE, 4.0%(5) Blood culture, 0.8%(1) LFT and 6.4%(8) are other tests ordered by these doctors. 43 doctors were having work experience of 10 years and among them 72.1%(31) order CBC, 0%(0) order Urine D/R, 0%(0) stool D/R, 4.7%(2) MRI, 4.7%(2) CT scan, 0%(0) UCE, 0%(0) blood culture, 0%(0) LFTs and 18.6%(8) other tests are ordered by them. 8 doctors who had work experience of 15 years participated and among them 87.5%(7) order CBC, 0%(0) order Urine D/R, 0%(0) stool D/R, 0%(0) MRI, 0%(0) CT scan, 0%(0) UCE, 0%(0) blood culture, 0%(0) LFTs and 12.5%(1) order other tests. Doctors who have worked for more than 15 years were 10 in number and 100%(10) order CBC only while Urine D/R, stool D/R, MRI, CT scan, UCE, blood culture, LFTs and rest are not ordered by these senior doctors.

Common Investigations												
			Investigations									Total
			CBC	Urine	Stool	MRI	CT scans	UCE	Blod culture	LFT	Others	
Practicing_ since	5 years	Count	102	6	2	1	2	2	5	1	8	129
		% within Practicing_ since	79.1%	4.8%	1.6%	0.8%	1.6%	1.6%	4.0%	0.8%	6.4%	100.0%
	10 years	Count	31	0	0	2	2	0	0	0	8	43
		% within Practicing_ since	72.1%	0.0%	0.0%	4.7%	4.7%	0.0%	0.0%	0.0%	18.6%	100.0%
	15 years	Count	7	0	0	0	0	0	0	0	1	8
		% within Practicing_ since	87.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	12.5%	100.0%
> 15 years	Count	10	0	0	0	0	0	0	0	0	10	
	% within Practicing_ since	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	
Total		Count	150	6	2	3	4	2	5	1	17	190
		% within Practicing_ since	78.9%	3.2%	1.1%	1.6%	2.2%	1.1%	2.7%	0.5%	9.1%	100.0%

Table-V

Knows Defensive Medicine												
			Investigations									Total
			CBC	Urine	Stool	MRI	CT scans	UCE	Blod culture	LFT	Others	
Know_ Defensive_ Medicine	Yes	Count	85	0	2	2	2	1	0	1	3	96
		% within Know_ Defensive_ Medicine	88.5%	0.0%	2.1%	2.1%	2.1%	1.1%	0.0%	1.1%	3.2%	100.0%
	No	Count	65	6	0	1	2	1	5	0	14	94
		% within Know_ Defensive_ Medicine	69.14%	6.5%	0.0%	1.1%	2.2%	1.1%	5.4%	0.0%	15.2%	100.0%
Total		Count	150	6	2	3	4	2	5	1	17	190
		% within Know_ Defensive_ Medicine	78.9%	3.2%	1.1%	1.6%	2.2%	1.1%	2.7%	0.5%	9.1%	100.0%

Table - VI

Know Defensive Medicine * Investigations

Table-VII shows frequency distribution of commonly ordered investigations by doctors in relation to their awareness of defensive medicine. Total 189 doctors participated and among them 96 doctors already knew about defensive medicine, out of these 96 88.5%(85) order CBC, 0%(0) Urine D/R, 2.1%(2) stool D/R, 2.1%(2) MRI, 2.1%(2) CT scan, 1.1%(1) UCE, 0%(0) blood culture, 1.1%(1)

LFTs and 3.2%(3) other tests were ordered by them. 94 doctors heard about defensive medicine first time, among them 69.14%(65) order CBC, 6.5%(6) Urine D/R, 0%(0) stool D/R, 1.1%(1) MRI, 2.2%(2) CT scan, 1.1%(1) UCE, 5.4%(5) blood culture, 0%(0) LFTs and 15.2%(14) are other tests ordered by them. Out of 190 doctors total 78.9%(150) doctors order CBC, 3.2%(6) order Urine D/R, 1.1%(2) stool D/R, 1.6%(3) MRI,

2.2%(4) CT scan, 1.1%(2) UCE, 2.7%(5) blood culture, 0.5%(1) LFTs and 9.1%(17) order other tests.

DISCUSSION

Defensive medicine medically means the practice of ordering medical tests, procedures, or consultations of doubtful clinical value in order to protect the prescribing physician from malpractice suits. The main aim lying behind the idea for conducting this research over defensive medicine is to assess the prevalence and practice of defensive medicine in a third world country like Pakistan. For that highly preferred participation of senior doctors of Civil and Jinnah Hospital of Karachi was appreciated to figure out the prevalence of defensive medicine mainly in government sector. A total of 190 doctors participated in this survey although the total sample size was 200 but 10 of our questionnaires were rejected by the doctors when offered to them and the most probable cause seems to be their tough schedule with which they get tired.

According to the research conducted by Hiyama T, Yoshihara M, avoiding care for high-risk patients, was very common (96%). 75% respondents reported often avoiding certain procedures or interventions. However, seasoned gastroenterologists (those in practice for more than 20 years) adopted avoidance behaviors significantly less often than those in practice for less than 10 years while in our study only 7.4% (14) doctors avoid care for high risk patients while 92.6%(175) doctors don't avoid. The reason behind this huge difference is that the doctors here are practising in government sectors and are least sued furthermore the government setup provides more facilities within minimum expenses allowing rush of high risk patients there. This research conducted in Japan shows 75% of avoidance towards invasive procedures but according to our results 40.7% (77) doctors avoid invasive procedures while 59.3% (112) go for invasive procedures to confirm their diagnosis and among them mostly are Cardiologists who go for angiography or Oncologists who order biopsy⁶.

According to the research conducted by Osman Ortashi, Jaspal Virdee majority of participants, 89% (n= 182) were aware of the concept of defensive medical practice. The majority 91% (n =185) had the impression that legal claims against doctors are increasing and 14% (n= 29) had a direct experience of litigation. Whereas our study estimated that on asking just 47.9% (91) doctors knew about defensive medicine and 52.1% (99) doctors did not know. Reason may be because the term is not commonly used or may be the lack of acknowledgement programs and seminars has left doctors unaware of the term but this was surprising to know that the doctors unaware of defensive medicine were found practising it. Around 73.15% (139) doctors agree in its practice⁸.

Another research conducted by orthopedic surgeon recorded imaging was required for clinical care or ordered for defensive reasons and found that physicians ordered 19.1 percent of imaging tests and 38.5 percent of MRIs for defensive reasons. This research is related to orthopedics so they order more MRIs but our study recorded 78.9%(146) order Complete blood count (CBC), 3.2%(6) order Urine Detailed report (D/R), 1.1%(2) order stool D/R, 1.6%(3) order MRI, 2.2%(4) order CT scan, 1.1%(2) order Urea Creatinine Electrolyte (UCE), 2.7%(5) order Blood cultures, 0.5%(1) order Liver Function Test (LFT) and 9.1%(17) order some other investigations as well. These results show low values for MRI because this study is mainly directed towards the medicine departments where CBC is ordered more frequently than any other test. 9.1% other tests mainly include ECG which is an important tool for diagnosis of cardiac diseases, Ultrasound is mainly considered in patients presented with renal disorders.

CONCLUSIONS

The conclusion obtained from the results shows that most of the participants were experienced doctors but many of them were unaware of the defensive medicine and in spite of that too great number of doctors strongly believe in its practice.

Majority of the doctors were found caring for high risk patients. However the prevalence and practice of defensive medicine reduced among doctors having experience of more than 5 years.

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Never argue with stupid people,
they will drag you down to their level and
then beat you with experience.

Mark Twain

