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EDITORIAL

We are very pleased to publish the first volume of the International Journal of Health Services Research and Policy. Our mission is to revive the international dialog in all fields of health services and management among academicians and policy makers. Topics that are suitable for IJHSRP include but not limited to healthcare management and organization, public health, hospital administration, nursing and healthcare, aging and healthcare, disability and health, women's healthcare, children's healthcare, sports and healthcare, health education, home healthcare, quality in healthcare, informatics for healthcare, healthcare marketing, healthcare financing and health sciences researches.

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Sincerely

Dr. RojanGümüş
Editor in Chief

APPLICATION OF PERFORMANCE INDICATORS TO A UNIVERSITY HOSPITAL

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Abstract: *"Assessment" is the process of objectively understanding the state or condition of a thing, by observation and measurement. Assessment of something means taking a measure of its effectiveness. "Formative" assessment is measurement for the purpose of improving it. "Summative" assessment is what we normally call "evaluation."* Evaluation" *is the process of observing and measuring a thing for the purpose of judging it and of determining its "value," either by comparison to similar things, or to a standard. Although health service can be provided in different structures and systems the common goal in all health care services is to practice the right procedures on the right people at the right time. This may be possible with the continuous improvement process of quality and development.*

In this study we emphasized on 19 indicators followed in Dicle University Hospital regarding targets, obtained results, interpretation of results, corrective and preventive actions, challenges and solutions for collecting correct data. Additionally by taking account indicator applications in Dicle University a model was proposed for university hospitals.

Key words: *Assessment, evaluation, performance, indicator, model*

1. INTRODUCTION

Indicator is a way to measure, indicate, point out or point to with more or less exactness. It is something that is a sign, symptom or index of or used to show visually the condition of a system.

In quality management decisions must be based on proofs and data. Quality, efficiency, effectiveness, transparency and planning of health services can take place only by measuring results of followed and evaluated data. It can be said that quality and measurement are indispensable in evaluation of health services.

Quality indicator is a systematic measurement tool in order to monitor specific activities as part of the quality management system. In recent days indicator targets are used to reduce morbidity, complications, errors and adverse events in health services. In health care

as in other arenas which cannot be measured is difficult to improve. Reliable indicators should be used in order to improve the quality of health care by providers, consumers and policy makers and others seeking to improve the [1-4]. Measurement is central to the concept of hospital quality improvement; it provides a means to define what hospitals actually do, and to compare that with the original targets in order to identify opportunities for improvement [5-7]. The principal methods of measuring hospital performance are regulatory inspection, public satisfaction surveys, third-party assessment, and statistical indicators, most of which have never been tested rigorously [8].

Ministry of Health in Turkey determined 19 quality performance indicators and asked health institutions to follow process of indicators. It has become a necessity to enter data within the Indicator Management System (IMS) by Health Ministry of Turkey [9].

At the end of 2014 a Performance Indicator Data Analysis was carried out by Dicle University Quality and Strategy Development Coordinator and it was investigated that affiliated branches and affiliated departments had not enter efficient and enough data.

The Indicator Management Working Group was formed upon this. Indicator Management Working Group gathered during certain periods and decided on 2015 Indicator Targets and 2014 data analysis such as:

- ✓ Realizing of Corrective and Preventive Activities related to low or high targets,
- ✓ Researching and Selecting University hospitals equivalent to our hospital as a partner in comparison,
- ✓ Determining 2015 targets
- ✓ Sharing 2015 indicator targets with related committees,
- ✓ Sending official letters to the responsible of units concerned about inaccessible data in 2014
- ✓ Sharing results of performance indicator targets of 2014

In the framework of these decisions a module called Indicator Management was developed on Hospital Information Management System and information about module was given to all units.

2. FINDINGS:

According to the results of the analysis conducted by the Indicator Management Module, the following findings were obtained. In Tables 1- 19 targets and results of 2014, and targets of 2015 regarding indicators is given. Also target of the indicator is defined and source of data, responsible for collecting data and following the process is indicated in the tables.

Table 1: Indicator of injuries resulted from cutting and drilling

Units to be followed	Hospital's all polyclinics and clinics
Target of Indicator	Following and evaluating frequency, type and reasons of cutter drill injuries. After injuries resulted from cutting and drilling person who is exposed to blood or other body fluids may get effected. In order to reduce these risks necessary measures must be taken.

Source of Data	Notification form of injuries resulted from cutting and drilling	
Frequency of Data Collecting	Monthly	
Responsible(s)	Responsible nurse for infection control Committee of occupational health, Quality Strategy Development Coordinator	
2014 Target	**2014 Results**	**2015 Target**
% 1	**%1,36**	**% 1**

According to Table 1. After comparing determined target and reached results it was seen that targets were realized. It can be said that patient safety in hospital increased in last year.

Table 2. Indicator of number of health workers exposed to blood and other body fluids

Unıts to be followed	All of hospital's areas of investigation and treatment.	
Target of Indicator	Following frequency, type and reasons of being exposed to blood and other body fluids. After being exposed to blood and other body fluids a person may be affected. In order to reduce these risks necessary measures must be taken.	
Source of Data	Notification form of being exposed to blood and other body fluids	
Frequency of Data Collecting	Once in 3 Months	
Responsible(s)	Responsible nurse for infection control Committee of occupational health, Quality Strategy Development Coordinator	
2014 Target	**2014 Results**	**2015 Target**
% 1	% **0.06**	**% 1**

Table 2 shows that since the results of 2014 are below the targets planned for that year we can say that efforts served the purpose in that period.

Table 3. Indicator of intensive care mortality rates

Units to be followed	Intensive care units of hospital
Target of Indicator	Following intensive care mortality rates and taking measures in order to reduce mortality
Source of Data	Notification form of Intensive Care Mortality Rates
Frequency of Data Collecting	Monthly

Responsible(s)	Responsible of Intensive Care unit, Committee of Patient safety	
2014 Target	**2014 Result**	**2015 Target**
% 8	**% 10.92**	**% 5**

Results regarding mortality rates are over the targets for 2014. As our hospital is serving to a very wide range of patients, this result does not affect patient safety.

Table 4. Indicator of decubitus ulcer in Intensive Care Units

Units to be followed	Intensive Care units of Hospital	
Target of Indicator	Evaluating and enhancing quality of patient care in intensive care units and taking measures about decubitus ulcer cases.	
Source of Data	Notification form of decubitus ulcer cases in Intensive Care Units	
Frequency of Data Collecting	Monthly	
Responsible(s)	Responsible of Intensive Care unit, Committee of Patient safety Quality and Strategy Development Coordinator	
2014 Target	**2014 Result**	**2015 Target**
Incidence no = %1 **Total incidence rate= %1**	Incidence no = %0, 78 **Total incidence rate = %0, 38**	Incidence no = %1 **Total incidence rate = %1**

According to Table 4 results for 2014 are below targets of that year. It can be said that patient safety in intensive units increased in last year.

Table 5. Indicator of Hospital infection rate in intensive care units

Unıts to be followed	Intensive Care units of Hospital
Target of Indicator	Hospital infection is a major problem in hospitals. Controlling and preventing of this type of infection is very important.
Source of Data	Notification form of infection rate in Intensive Care Units
Frequency of Data Collecting	Monthly
Responsible(s)	Responsible of Intensive Care unit, Committee of Patient safety Quality and Strategy Development Coordinator

2014 Target	2014 Result	2015 Target
% 1.5	**%1,36**	**% 1.5**

We can say that infection rate in intensive care units decreased in 2014 according to Table 4. Efforts of responsibles in intensive care units served the purpose of targets in that period.

Table 6. Indicator of Surgical Site Infection Rate

Short Definition	A measurement tool to follow the rate of infection in patients undergoing surgery at the hospital.	
Target of Indicator	To monitor and prevent surgical site infection rates in surgically treated patients	
Source of Data	Data entered by infection nurse	
Frequency of Data Collecting	Once in 3 Months	
Responsible(s)	Responsible nurse for Infection Control Nurse responsible for Surgery Unit Committee of Patient safety Quality and Strategy Development Coordinator	
2014 Target	**2014 Result**	**2015 Target**
% 1.5	**% 0.04**	**% 1.5**

According to Table 6 results for 2014 are below targets of that yearon behalf ofsurgical site Infection Rate. This result contributed to reducing mortality and costs of health services.

Table 7. Indicator of Falling Patients

Unıts to be followed	All of our hospital's areas of investigation and treatment.
Target of Indicator	Following and preventing patient falls in hospitals.
Source of Data	Notification form of Falling patient
Frequency of Data Collecting	Monthly
Responsible(s)	Responsible of the unit Committee of Patient safety

2014 Target	2014 Result	2015 Target
% 1	% 0.11	% 1

Table 7 shows that results of 2014 for Indicator of Falling Patients are below the target. Trainings regarding patient safety, and use of falling risk scales decreased the rate.

Table 8. Indicator of Cesarean rates

Short definition	Ratio of births by cesarean in total live births	
Target of Indicator	High cesarean rates create risks in births and has disadvantages on behalf of future pregnancies. Also it brings additional costs. So this rate has to be reduced.	
Source of Data	Notification form of cesarean rates	
Frequency of Data Collecting	Monthly	
Responsible(s)	Responsible nurse for Obstetrics Unit Committee of Patient safety	
2014 Target	**2014 Result**	**2015 Target**
% 50	**% 78.20**	**% 50**

According to Table 8, targets of Indicator of Cesarean rates couldn't be reached. After analysis it was found that this result arises from preference of patients.

Table 9. Indicator of rate of using operating table in surgeries

Short Definition	A measurement tool for determining effective and efficient use of operating tables in hospital.
Target of Indicator	Reducing waiting periods of patients and making use of hospital sources efficient and effective on behalf of time and cost
Source of Data	Notification form of rate of using operating table in surgeries
Frequency of Data Collecting	Monthly

Responsible(s)	Responsible nurse for operating room Responsible doctor	
2014 Target	**2014 Result**	**2015 Target**
% 50	**% 40.19**	**% 50**

In Table 9 it can be seen that results of 2014 for Indicator of rate of using operating table in surgeries is are below the target.

Table 10.Indicator of rehospitalization in intensive care units

Short Definition	Rate of rehospitalization of discharged patients 48 hours after discharge	
Target of Indicator	Evaluating and enhancing clinical efficiency of intensive care units and providing safety of patients.	
Source of Data	Notification form of rehospitalization of discharged patients rates	
Frequency of Data Collecting	Monthly	
Responsible(s)	Responsible of Intensive Care Unit Committee of Patient safety	
2014 Target	**2014 Result**	**2015 Target**
% 5	**% 24.08**	**% 5**

Although rate of rehospitalization in intensive care units seems to increase in Table 10 after analyzing the reasons, it was found that there was a deficiency in entering the data.

Table 11. Indicator of rate of patients who reapply emergency service in 24 hours

Short Definition	Determining and following the number and the rate of emergency patients who reapply in 24 hours. Period begins in the first hour of patient's first application and includes next 24 hours.
Target of Indicator	Determining and following the health services efficiency and patient care in emergency unit.
Source of Data	Notification form of emergency patients who reapply emergency service 24 hours

Frequency of Data Collecting	Monthly				
Responsible(s)	Emergency service response specialist Responsible nurse of emergency Committee of Patient Safety Quality and Strategy Development Coordinator				
2014 Target		**2014 Result**		**2015 Target**	
Emergency for Adults	**Emergency for Children**	**Emergency for Adults**	**Emergency for Children**	**Emergency for Adults**	**Emergency for Children**
IW= % 30 **OW= % 50**	**IW= % 30** **OW= % 50**	**IW= % 34.73** **OW= % 65.42**	**IW= % 34.04** **OW= % 65.96**	**IW=%30** **OW= % 50**	**IW=%30** **OW= % 50**

IW: In work hours

OW: Out of work hours

We can say that infection rate of emergency patients who reapply emergency service in 24 hours increased in 2014 according to Table 11.

Table 12. Indicator of rate of dispatched patients to another health institution and distribution of diagnosis in emergency service

Short Definition	Evaluation of dispatched patients to another health institution and distribution of diagnosis in emergency service by numbers and rates	
Target of Indicator	Determining and following rate of dispatched patients to another health institution and distribution of diagnosis in emergency service	
Source of Data	Notification form of rate of dispatched patients to another health institution and distribution of diagnosis in emergency service	
Frequency of Data Collecting	Monthly	
Responsible(s)	Emergency service response specialist Responsible nurse of emergency unit Committee of Patient Safety	
2014 Target	**2014 Result**	**2015 Target**
% 1	**% 0.2**	**% 1**

In Table 12 it can be seen that results of 2014 rate of dispatched patients to another health institution is below the target. This is a result of effective process in health services in our hospital.

Table 13.Indicators of staying time of patients in short stay units in emergency units

Short Definition	Following staying time of patients in short stay units in emergency units	
Target of Indicator	Promotion of efficiency and effectiveness of health services and providing safety of patients in emergency services	
Source of Data	Notification form of staying time of patients in short stay units in emergency units	
Frequency of Data Collecting	Monthly	
Responsible(s)	Responsible specialist in emergency service Responsible nurse in emergency service Responsible staff for data recording	
2014 Target	**2014 Result**	**2015 Target**
% 5	**% 5,58**	**% 2**

According to Table 13 results for 2014 were more than target on behalf of staying time of patients in short stay units in emergency units. This result is related to insufficient data entering.

Table 14. Indicator of reaching time of consultant doctor to emergency service in case of calling.

Short Definition	A measurement tool for investigating and following reaching time of consultant doctor to emergency service in case of calling.
Target of Indicator	Promoting efficiency and effectiveness of emergency services and providing safety of patients in emergency services
Source of Data	Notification form of reaching time of consultant doctor to emergency service in case of calling.
Frequency of Data Collecting	Monthly

Responsible(s)	Responsible specialist in emergency service Committee of Patient Safety Quality and Strategy Development Coordinator	
2014 Target	**2014 Result**	**2015 Target**
% 95	**No data**	**% 95**

Table 15. Indicator of evaluation of consistency rate between Cytologic and Pathological diagnosis

Short Definition	A measurement tool in order to evaluate the consistency between Cytologic and Pathological diagnosis of a patient.	
Target of Indicator	Developing efficiency of pathology laboratory and providing safety of patients	
Source of Data	Notification form of rate of consistency between Cytologic and Pathological diagnosis	
Frequency of Data Collecting	Monthly	
Responsible(s)	Responsible nurse of Infection control Committee of Patient Safety Quality and Strategy Development Coordinator	
2014 Target	**2014 Result**	**2015Target**
% 95	**No data**	**% 95**

Table 16.Indicator of rate of Nurses' changing work place in the hospital

Short Definition	A measurement tool for determining efficiency of nurses in health services.
Target of Indicator	Integrating nurses to process of treatment process and promoting efficiency of health services.
Source of Data	Notification form of Nurses' changing work place in the hospital
Frequency of Data Collecting	Once in a month
Responsible(s)	Head nurse Human resources department

2014 Target	2014 Result	2015 Target
% 1	No data	% 1

Table 17. Indicator for filling out inpatient care reports completely

Short Definition	A measurement tool for checking the reports of inpatients from examination period to discharge	
Target of Indicator	Following and providing safety of records in patient records	
Source of Data	Notification form of inpatient care reports	
Frequency of Data Collecting	Monthly	
Responsible(s)	Responsible nurse in the unit Responsible staff for data recording Archivist of unit Quality and Strategy Development Coordinator	
2014 Target	**2014 Result**	**2015 Target**
% 5	**No data**	**% 5**

Table 18. Indicator of rate of the number of polyclinic rooms per doctor

Short Definition	A measurement tool for determining and following the number of polyclinic rooms per doctor	
Target of Indicator	Providing a private room for every doctor in polyclinics and following the efficiency of health services.	
Source of Data	Indicator of rate of polyclinic room per doctor	
Frequency of Data Collecting	Monthly	
Responsible(s)	Chief Physician, Quality and Strategy Development Coordinator	
2014 Target	**2014 Result**	**2015 Target**

% 10	**No data**	**% 10**

Table 19. Indicator for use of antibiotics in Surgical Prophylaxis

Short Definition	A measurement tool for controlling correct use of antibiotics in order to prevent infections after surgeries.	
Target of Indicator	Preventing complications after surgical operations	
Source of Data	Notification form of use of antibiotics in Surgical Prophylaxis	
Frequency of Data Collecting	Monthly	
Responsible(s)	Committee of Infection Control Committee of Patient Safety Quality and Strategy Development Coordinator	
2014 Target	**2014 Result**	**2015 Target**
% 80	**No data**	**% 80**

3. DISCUSSING AND CONCLUSION

Measurement is central to the concept of quality improvement; it provides a means to define what hospitals actually do, and to compare that with the original targets in order to identify opportunities for improvement [5].

Evaluating 19 indicators according to data collected from units, we communicated with units, which didn't supply data. Reasons of lack of data were investigated and root-reason analysis was made. Make up for the shortcomings had been done about data input in units for 2015. For reaching goals we shared the results with Indicator management working group, Quality and Strategy Development Coordinator, Committee of Patient Safety and Committee of Occupational Health Group.

As a result we recommended that every university establish an Indicator Management Department. In order to establish an Indicator Management Department a module should be developed by responsible information management units of hospitals.

The proposed module type is in this form:

Table 20: Annual Hospital Indicator follow-up

HOSPITAL ANNUAL INDICATOR MEASUREMENT FORM					
Indicator name	**Responsible**	**Target of last year**	**Results of last year**	**Results of equivalent**	**Targets of next year**

				hospital for last year	

By this developed module it is obvious that responsible units should be educated and annual analysis should be done by Quality and Strategy Development Coordinator. After analysis Corrective preventive action form should be organized and followed for units that couldn't reach the targets of last year. Additionally every hospital should determine an equivalent university hospital in order to make comparisons. After analysis done at the end of the year, results should be compared by equivalent hospital. Corrective preventive action form should be organized and followed for units, which are below the results of equivalent hospital, and required improvements must be done.

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VAL34LEU POLYMORPHISM DETECTION BY REAL TIME PCR ASSAY USING FLUORESCENCE RESONANCE ENERGY TRANSFER ON ROTOR-GENE 6000

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Abstract*: Factor XIII (FXIII) Val34Leu is the most important polymorphism of the A subunit in factor XIII gene. The aim of the present study was to develop an efficient method based on real time PCR with Fluorescence resonance energy transfer (FRET) detection and melting curve analysis for the detection of Val34Leu polymorphism.*

Specific primers were used to amplify the relevant fragment of the factor XIII-A gene and fluorescence resonance energy transfer hybridization probes were used for detection in a Rotor-Gene Q 5Plex HRM platform. Melting temperature (Tm) for the wild type was at 68.8, while Tm for homozygote mutant was at 63.8; heterozygote demonstrated both peaks. Our results showed that primers and probes propoesd in this study demonstrated a high specificity to identify wild type , heterozygous and homozygous mutantgenotypes.

Due to the increasing molecular diagnosis in developing countries and the importance of identifying polymorphisms, this real time PCR assay is of great importance. An important advantage of this approach is the high sensitivity and specificity.

Key words: *factor XIII, val34leu, Fluorescence resonance energy transfer, real time PCR*

1. INTRODUCTION

Blood coagulation factor XIII (FXIII) circulates as a protransglutaminase of two A and two B subunits (FXIII-A2B2) in plasma [1,2,3]. It consists of two potentially active A (FXIII-A) and two inhibitory/carrier (FXIII-B) subunits [4]. The gene coding for the FXIII-A (F13A) is located on chromosome 6p 24-25, it consists of 15 exons and 14 introns [5,6]. The gene of FXIII-B subunit (F13B) is located at position 1q31-32.1. The B subunit of FXIII is composed of 10 tandem repeats called sushi domains [6,7,8,9].

Five common polymorphism have been identified in the FXIII-A subunit, Val34Leu is the most important polymorphism [10,11]. This polymorphism is characterized by a → G → T transition at nucleotide position 100 leading to a Valine Leucine exchange at amino acid position 34 [12]. The FXIII activated by thrombin and Ca 2+ via cleavage the Arg37-Gly38 peptide bond of FXIII-A subunit. Activated FXIII (FXIIIa) play a fundamental role in the final stage of coagulation cascade and stabilizes fibrin clots by forming fibrin γ-chain dimers that lead to increased rigidity of the thrombus [13].

Various studies have been conducted to discover the link between Val34Leu Polymorphism

and venous Thrombosis, some studies have been shown that the Lue34 variant was associated with a decreased risk of venous thrombosis [14,15] but other studies have been shown conflicting results [13,16,17,18].

Several assays have been developed for detecting Val34Leu Polymorphism including singlestranded conformation polymorphism (SSCP) assay [12,14,19], amplification refractory mutation system-polymerase chain reaction (ARMS-PCR) technique [20], allele-specific PCR

[21] and restriction fragment length polymorphism (RFLP) [17,22]. But all these methods are labor-intensive and costly because post-PCR processing of PCR product is necessary. Our aim was to develop an efficient method for rapid detection of Val34Leu Polymorphism using Fluorsence resonance energy transfer on rotor-gene 6000.

2. METHODS

The study population consisted of 179 subjects who have been referred to Dr. Ashtiani's laboratory between Jan 2015 until Jan 2016. Genomic DNA was extracted from blood using Geno PlusTM Genomic DNA Extraction miniprep system (Viogene, China) according to the manufacturer's instruction. The prepared DNA was assayed immediately or stored at -20°C until being used.

2.1. The Primers and Probes

The primers and probes were designed with Oligoanalyzer version 2.1 software summarized in table 1. The sensor probe covering the polymorphic region was labelled with fluorescein at the 3' end. A t->G mismatch was introduced in the sensor to decrease the melting temperature. The anchor probe was labeled with the Cy5 fluorescent dye at the 5' end and blocked with phosphateat the 3' end to prevent extension during PCR. The gap between the two probes were two nucleotides.

Table 1. Primers and Probes used for Genotyping the FXIII-A Val34Leu Polymorphism

Primers/Probes	**Sequence**
Forward primer	**5'**-TCT AAT GCA GCG GAA GAT GAC-**3'**
Reverse primer	**5'**-CCC AGT GGA GAC AGA GGA TG-**3'**
Sensor	**5'**-GTGGAGCTTCAGGGCTTGGTG-FAM-**3'**
Anchor	**5'**-Cy5-CCGGGGCGTCAATTTGCAAGGTATGAGC (P)- **3'**

2.2. FRET Real-Time PCR

PCR reaction were performed in a final volume of 25 µl in each reaction containing 500 ng of genomic DNA, 0.8 µmol/l of each primer, 0.16 µmol/l of anchor probe, 0.16 µmol/l of sensor probe, 2 U GoTaq DNA Polymerase (Promega), 2.5 µL of 10× buffer, 0.5 mM of dNTP and 3 mM of MgSO4.

One sample without DNA, as a negative control, was included in all assay series.

3. RESULTS AND FINDINGS

In this study, the proposed protocol was performed on 179 individuals with a clinical History of thrombosis. The melting temperature (Tm) of the Val/Val was 68.8 (wild type), while Tm for the Leu/Leu was 63.8 (Homozygous mutant). Individuals with Val/Leu Genotype of the Heterozygous mutant showed both peaks (figure 1). One hundred and eight outof 179 DNA samples were wild type, 9 samples were heterozugous mutant and 1 sample was homozygous mutatnt. Our results showed that primers and probes propoesd in this study

demonstrated a high specifity to identify natural homozygous genotypes. Heterozygous and homozygous mutant.

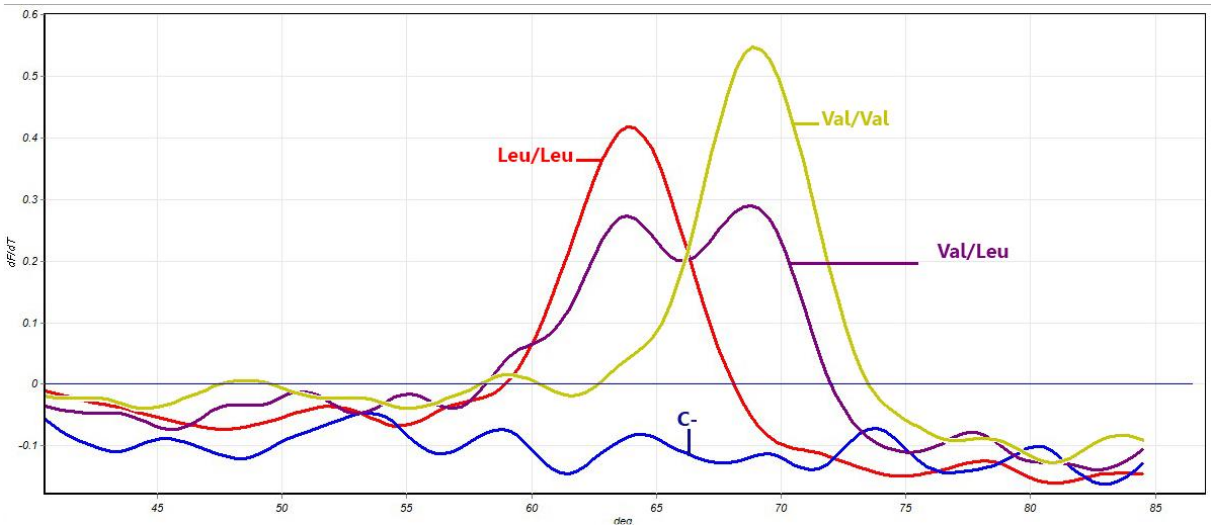

Figure 1. Melting curves

4. CONCLUSION

A FRET Reat-Time PCR method using primes and probes for the identification of Val34Leu polymorphism was developed. Many techniques have been developed to detection Val34Leu polymorphism. Early methods, such as single-stranded conformation polymorphism (SSCP), amplification refractory mutation system-polymerase chain reaction (ARMS-PCR), allele-specific PCR and restriction fragment length polymorphism (RFLP) are too time consuming, labor intensive and require considerable technical skills.

In this study Genotyping was performed with Rotor gene system. An advantage of FRET hybridization assays includes a high level of specificity and the ability to perform melting curve analysis. This method is a high-throughput, efficient, accurate and rapid assay, with this method there is no need for processing after amplification, thus eliminating PCR contamination concerns.

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VIOLENCE AGAINST HEALTH CARE WORKERS: A RETROSPECTIVE STUDY

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Abstract: *As violence in society is increasing in recent years it is an important problem in health institutions as well. Changes in health systems, rising socio-economic levels of people, and changes in expectations for health services led to violence in health sector. This study was conducted for the purpose of examining work place violence against health care workers. This retrospective-descriptive*
study covers a period from December 2011 to April 2015. 136 notifications about work place violence reported by health workers to quality management unit of a hospital were taken into account. Research findings show that 43,4% of the victims of violence was physicians, 37,5% was nurses and health officers and 19,1% were from other professions. 63,2% of the health workers were women, 36,8% were male. Additionally health workers were exposed to violence by 47.3% of the patients and
52.7% by their relatives. 69.7% of the people applied violence were male and 30.3% were female. 63,2% of the health workers exposed to violence were women, 36,8% were male. According to our results male physicians were exposed to workplace violence more than other workers and this was significant (□□2=31,634, p<0,01).

When place of violence occurred was investigated it was seen that while most of physicians were exposed to violence in polyclinics, nurses were exposed to violence in inpatient services (□2=18,231, p<0,01). Male physicians were exposed to verbal violence most. On the other hand nurses experienced both verbal and physical violence (□2=34,639,p<0.01). Patient relatives applied verbal violence and the others applied physical violence (□2=22,073, p<0,01).

As a result, in order to reduce / prevent violence in work place , it is considered necessary to increase consciousness of patients and their relatives, to increase security measures in health institutions, to provide health workers to report work place violence to management , to improve physical working conditions and increase legal sanctions in terms of providing employee safety.

Key words*: Health Workers, Health institution, Employee Safety, Violence*

1. INTRODUCTION

The World Health Organization defines violence as "the possibility of causing or leading to injury, death, psychological damage, impaired development or absence in one person, group or community with intentional physical exertion, use of force" Violence can be seen everywhere and is becoming a serious problem affecting all professions, especially in the

workplace [2]. Violence in the workplace is defined as "events that an individual or people have been abused or attacked during situations involving an employee's work" [2,3,4]. Violence in the workplace can be seen in many different types as verbal harassment, physical assault, harassment, bullying, intimidation, threats and obscene behavior [3]. Violence in the workplace, whether physical or psychological, has become a global problem whose boundaries went beyond working environments and occupational groups. Violence in the workplace has escalated in recent years and has now become a priority in both industrialized and developing countries [5].

Health institutions are one of the most seen areas of violence [2]. Violence in health care institutions refers to verbal or behavioral threats, physical attacks or sexual assaults [2,4,6,7] which creates a risk for health care workers from patients, relatives or anyone else. Health institutions are among the places where workplace violence is mostly experienced because of environmental risk factors. Serving vulnerable people having mental illness, drug addicts and criminals is the greatest risk factor to be exposed to violence for health workers. Hospitals can turn into risky and dangerous environments for them [8]. In the literature, although verbal and physical types of violence are mostly discussed, psychological, sexual and economic violence have been included in types of violence in recent years [6]. It has been reported that the most common type of violence among types of violence in health institutions is verbal violence [9]. These attacks against health workers are in an increasing trend affecting community health additionally [6]. Violence is an important public health problem in society and workplaces, and the frequency of it is increasing [8].

Violence seen in the health sector is different from that in other sectors. Health care workers often provide service to patients and their relatives under difficult circumstances and in close relationships [10]. Working in a health institution is more risky than other workplaces because of violence. The frequency of verbal violence is higher than physical violence. In different studies, it has been stated that working in health institutions is 16 times more risky than other places of work because of the violence. It is stated that encountering violence may be a serious problem for physicians as well as other health personnel because of the fact that patients or patient relatives may not accept delays in treatments due to various reasons and tend to be aggressive [11].

There are different factors that increase the risk of violence in health institutions. These include 24-hour uninterrupted health care given by health workers, the presence of stressful family members, long waiting times for patients, and inability of health staff to maintain their care. It has also been reported that the intensity of work, insufficient number of staff, working in an overcrowded environment, working alone, lack of education in coping with violence, lack of sufficient security personnel, lack of restriction on violence can be considered as factors increasing the risk of violence [12].

The main causes of violence in health institutions are interaction between health workers and patients, organizational factors, environmental factors and social variables. Patients and their relatives and health workers are in a process of interaction involving complex relationships. In this process, it is necessary for the individuals to be in contact by exchanging information in order to carry out the communication process for a healthy interaction. However, clear and effective communication does not generally take place

between health workers and patients and their relatives, and some communication problems arise. Organizational factors that create violence in health institutions include lack of infrastructure and equipment, lack of personnel, extended queues, delayed appointments, excessive workload, adverse working conditions, lack of time to hospitalization, lack of empty beds and lack of safety. Factors such as culture, level of crime in the community, level of poverty, level of drug use, population density is among the environmental factors of violence in health institutions. [13].

Violence in the workplace damages the physical, psychological and social structure of health workers and can lead to many disorders such as increasing stress and medical errors, decreasing of work efficiency and quality of life, anxiety and concentration difficulties, withdrawing from social relations besides the initial effects [12]. It can also cause adverse consequences, both physically and psychologically. These negative results may lead to a rise in emotional reactions, anger, shock, fear, depression, and anxiety and sleep disorders. Occupational accidents, injuries and even suicides can be seen in workplaces exposed to violence frequently [10].

2. METHOD

This retrospective-descriptive study covers a period from December 2011 to April 2015, when the "White Code" application launched at a Training and Research Hospital for work place violent in health care facilities begins. In this study 136 notifications about work place violence reported by health workers to quality management unit of a hospital were investigated. In the analysis of the data, SPSS 19.0 was used. Permission was obtained from the Institution's Clinical Research Ethics Committee and the institution before starting work.

3. FINDINGS

The findings obtained from analysis of data regarding health workers exposed to violence in the health institution is given below.

Table 1. Distribution of health workers exposed to violence according to professions (n=136)

Profession	**n**	**%**
Physician	59	43,4
Nurse, Health Officer	51	37,5
Other	26	19,1
Total	136	100

Table 1.shows that 43,4% of the victims of violence were physicians, 37,5% were nurses and health officers and 19,1% were from other professions.

Table 2.Distribution of people who applied violence to health workers (n=110)

People applied violence (n=110)	**n**	**%**
Patient	52	47,3
The relatives of the patients	58	52,7
Total	110	100

It can be seen from Table 2 that health workers were exposed to violence by 47.3% of the patients and 52.7% by their relatives.

Table 3. Distribution of people who applied violence and health workers exposed to violence by gender(n=110**)**

People applied violence (n=110)				**Health workers exposed to violence (n=136)**			
Female		Male		Female		Male	
n	%	n	%	n	%	n	%
33	30,3	77	69,7	86	63,2	50	36,8

69,7% of the people applied violence were male and 30,3% were females. 63,2% of the health workers exposed to violence were women, 36,8% were male. Findings can be seen in Table 3.

Tablo 4. Relationship between profession and gender according to workplace violence

Health workers exposed to violence	**Gender**		**Total**	**Chi-Square Test**
	Female	**Male**		
Physician	5	54	59	χ^2=31,634; df=2; p=0,001
Nurse, Health Officer	23	28	51	
Other	22	4	26	
Total	50	86	136	

In Table 4 it can be seen that male physicians were exposed to workplace violence more than other workers.

Table 5. Relationship between place of violence and profession

Place of Violence	**Health workers exposed to violence (n=136)**			**Total**	**Chi-Square Test**
	Physician	**Nurse, Health Officer**	**Other**		
Inpatient services	14	28	12	54	χ^2=18,231; df=6; p=0,004
Polyclinics	18	12	9	39	
Emergency	27	10	4	41	
Other	0	1	1	2	
Toplam	59	51	26	136	

According to Table 5. While most of physicians were exposed to violence in polyclinics, nurses were exposed to violence in inpatient services.

Table 6. Relationship between violence type and profession

Violence type	Health workers exposed to violence			Total	Chi-Square Test
	Physician	Nurse, health officer	Other		
Verbal Violence	51	29	7	87	χ^2=34,639; df=4; p=0,001
Physical Violence	6	18	10	34	
Verbal and Physical Violence	2	4	9	15	
Total	59	51	26	136	

As can be seen from Table 6 physicians were exposed to verbal violence most. Nurses experienced verbal and physical violence.

Table 7. Relationship between violence type and people who applied violence

Violence type	People who applied violence		Total	Chi-Square Test
	Patient	Patient relative		
Verbal Violence	26	45	71	χ^2=22,073; df=2; p=0,001
Physical Violence	23	4	27	
Verbal and Physical Violence	3	9	12	
Total	52	58	110	

According to Table 7 patient relatives applied verbal violence and the others applied physical violence.

When the types of physical violence were analyzed, erythromatosis around the left umbilicus (face, eye, nose, chest, ear, head), bite-tightening, bleeding in the mouth, kicking (arm, hand), erosion image, slapping, hair pulling, broken in the knee, throwing a hard object in the face, biting the chest, pushing, squeezing the throat and throwing shoulder in the chest were seen most.

4. DISCUSSION

Akca and his colleagues found that 47.4% of the victims of violence in a health institution were medical secretary or patient advisor, 36.8% were physicians, 10.5% were administrative personnel and 5.3% were health technicians. It was observed that 45.5% of the violence against health workers was inflicted by the patient and 40.9% of the violence was inflicted by the patient relatives. A majority of the violence exposers were male with a rate of 76.2%. 85.7% of the victims were women, 14.2% were males. It was observed that the place of violence of most seen was examination room with a rate of 45.5%. That was followed by the corridor with a rate of 22.7%. All of the staff that was exposed to violence explained their violence as verbal threat or aggression [11].

In study of Ayrancı and his friends, 48.4% of men and 52.5% of the women were found to have experienced violence among health workers. According to profession, the rates of abuse are 53.7% in physicians, 58.4% in nurses and 43.5% in assistant personnel. Violence occurred most in emergency department (63.1%) and clinical services. In 1071 health workers, the rate of violence was 50.8% [14].

Gülalp and colleagues found that there was a significant relationship between physical violence and gender, age, occupation, and experience at work [15].

In the "Health Workers Violence Survey" conducted by the Health and Social Workers' Union in 25 provinces and 1300 health workers it was found that there were more risky groups for exposure to violence. Participants were asked what extent they were exposed to violence throughout your career; 86.8% of the respondents stated that they were exposed to verbal, psychological or physical violence at least once. 23.7% of the respondents stated that they were exposed to physical violence in the last year. The proportion of people who have been exposed to psychological / verbal abuse within the past year is 98.3%. 56.9% of those exposed to violence stated that the violence was committed by patient relatives and 31.8% were performed by patients. When we look at the sex of the people who applied violence, we see that 68.33% is male and 31.67% is female. The time of the violence is widespread, both during working hours and during the seizure. While the rate of participants who reported violence during working hours was 64.5%, 33.9% stated that they were exposed to violence during the seizure. In the question "Where did the violence occur?" 25% of the participants answered the hospital corridor, 23.8% the emergency service, and 11.7% the polyclinic [16].

Arcak and Kasımoğlu found that 21% of nurses were exposed to violence at in last one year of working [17]. Winstanley and Whittington reported that 68.3% of participants were exposed to verbal violence in a study conducted in a general hospital in the UK [18].

In Demir's study, it was found that 60.3% of the nurses were exposed to violence in a hospital. The percentage of physical violence was 11.9%, verbal violence was 51.6% and sexual violence was % 9.5. It was found that 65.1% of cases of violence were committed by relatives of the patient [3].

In a study conducted in Kocaeli, the rate of exposure to violence in the last 12 months was 72.4%; the type of violence most exposed during work life was verbal violence with a rate of 98.5%. 14.3% of the health workers were exposed to workplace violence on weekdays; 30.1% were occurred during the visiting, and 37.2% were exposed during outpatient services [2].

Özcan and Bilgin systematically addressed violence against health workers in Turkey and reported that attacks were observed more frequently during the daytime than nighttime. In this systematic review, all types of violence towards healthcare workers were found to be high, and violence was performed by the majority of the patients' relatives and patients [19].

5. RESULT

This study focused on reported violence incidences, so it can be said that there may be a lot of violence victims who are not recorded official. The findings of the study show that among health workers physicians and nurses are most exposed to violence. Violence in workplace decreases performance of health workers and destroys quietness of environment. Besides verbal assault other kinds of violence as well as fist, kick, slap, bite occurs so that health workers have a risk in order to maintain their lives. Health professionals who work for enhancing the health of the people can unfortunately lose their own health when performing their duties. The underlying reason for violent acts against health workers is that individuals think that their or their relatives' health status is more important and urgent than all issues. Patients and / or relatives of patients are also subjected to violence as a result of their claim without knowing their responsibilities. In this case, the motivation of health personnel working in difficult conditions decreases and burnout occurs.

As a result, in order to reduce / prevent work place violence, it is considered necessary to increase consciousness of patients and their relatives, to increase security measures in health institutions, to provide health workers to report work placed violence against them to their institutions, to improve physical working conditions and increase legal sanctions against violence.

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