

A Death From Illegible Prescription and Negligence In Drug Dispensing: A Case Report

Rıza Yılmaz¹, Veli Özdemir¹, Muhammet Can², Ali Yıldırım³, Hayri Abanonu¹,

ABSTRACT

A mature style of handwriting results from years of practice and it is affected by many factors. Written communication is of great importance in medical practice and illegible handwriting may cause serious problems. Illegible handwritten prescriptions are well-recognized for increasing the risk of medication errors, including prescribing, dispensing, and administration. A 65-year-old woman underwent operation for the treatment of mitral valve failure on 20 December 2005. She was given her prescription on 28 December 2005 when she was discharged. Just after her discharge, she bought her prescription from a pharmacy. When she finished taking one box of the prescribed medicine and went to another pharmacy to buy her prescription, it turned out that she had been given Famodin, an H2 antagonist, instead of Coumadin, an anticoagulant, before.

She visited her doctor on 12th January 2006 for a check-up and the investigations showed an INR (International Normalized Ratio) of 0.7. On echocardiography, there was mitral valve thrombosis. The patient was infused heparin. When the INR reached 3,6, the patient was operated. On operation, a lot of thrombus in the left atrium was taken away and fibrin and thrombus were removed from the dysfunctional prosthetic valve. However, the patient died and the body of the person was buried without making autopsy. Relatives complained about the pharmacist who had

given the wrong drug at that time. Approximately one year later, the Court asked the cause of death for this case to the First Specialization Board of Council of Forensic Medicine. We present that the case had a mistake of drug dispensing due to an illegible prescription. Illegible handwriting may increase the risk of malpractice in medicine and damage to patients. The patient couldn't get the treatment which was vital for her and consequently died since the patient who must receive anticoagulant treatment following her heart surgery was given a drug which has a different medical effect due to a fault caused by mistaken reading of the prescription. For these reasons, prescriptions and other medical documents should be legible. Medical students and health professionals should be offered training about illegible handwriting prescriptions that can cause problems. All medical documents including prescriptions should be written in computers so that illegible handwriting of medical professionals can be prevented.

Key Words: Illegible handwriting, prescription, coumadin, famodin, medical errors, forensic medicine.

OKUNAKSIZ REÇETE VE YANLIŞ VERİLEN İLAÇ NEDENİYLE GELİŞEN ÖLÜM: BİR OLGU SUNUMU ÖZET

El yazısı, uzun yıllar süren tekrarlar sonucu olgunlaşmaktadır el yazısında değişikliğe yol açan pek çok etken bulunmaktadır. Tıbbi uygulamada yazılı iletişimin

1. Council of Forensic Medicine, Istanbul, Turkey

2. Balıkesir University School of Medicine, Department of Forensic Medicine

3. Tokat University School of Medicine, Department of Forensic Medicine, Tokat

önemli olması nedeniyle okunamayan el yazısı ciddi problemler oluşturabilmektedir. Okunaklı olmayan el yazısı ile yazılmış reçeteler nedeniyle yanlış ilaç ya da uygun olmayan dozda ilaç verilmesi ile tıbbi uygulama hataları oluşabileceği bilinmektedir.

65 yaşında bir kadın, 20.12.2005 tarihinde mitral kapak yetersizliği nedeniyle opere edilir. 28.12.2005 tarihinde taburcu edilirken kullanması gereken ilaçlar reçete edilir. Reçetede ilaçlar bitince yenisini almak üzere farklı bir eczaneye gidilir, ancak daha önce bir antikoagülan olan "Coumadin" adlı ilacın yerine bir H2 antagonisti olan "Famodin" adlı ilacın verildiği anlaşılır. 12.01.2006 tarihinde kontrole gidilir, yapılan tetkiklerde INR (International Normalized Ratio) 0.7 bulunur. Ekokardiyografide tromboze kapak saptanınca heparin infüzyonuna başlanır. INR yükselince (3.6) hasta operasyona alınır. Ameliyatta sol atriyumdan trombus ve fibrinli disfonksiyonel protez kapak temizlenir. Buna rağmen hasta ölür ve kişi otopsi yapılmadan gömülür.

Akrabaları yanlış ilaç veren eczacıyı şikayet ederler. Yaklaşık bir yıl sonra mahkeme, Adli Tıp Kurumu Birinci İhtisas Kurulu'na dava dosyasını göndererek kişinin ölüm sebebini sorar. Biz bu olguyu okunaklı olmayan reçeteden dolayı yanlış verilen ilaç nedeniyle sunmaktayız. Okunaklı olmayan el yazısı ile yazılmış bir reçete tıbbi hata ve hastaya zarar verme riskini artırabilir. Olgumuzda ilk ameliyat sonrası gerekli antikoagülan tedaviyi alamayan hasta, yanlış okunan reçete nedeniyle farklı tıbbi etkiye sahip bir ilaç verilip kendisi için yaşamsal önemi olan antikoagülan tedaviyi alamaması nedeniyle ölmüştür. Bu nedenle reçete ve diğer tıbbi belgeler okunaklı yazılmalıdır. Bu amaçla tıp eğitimi alanlara ve meslekte çalışanlara okunaksız tıbbi belgelerin yol açabileceği sorunlar ile ilgili sürekli eğitim verilmelidir. Ayrıca reçeteler de dahil olmak üzere tüm tıbbi belgelerin bilgisayar ortamında yazılmasıyla hekimlerin okunaksız yazı yazmaları önenebilecektir.

Anahtar kelimeler: El yazısı; Reçete; Coumadin; Famodin; Tıbbi hatalar; Adli tıp

INTRODUCTION AND AIM

A mature style of handwriting results from years of practice and it is affected by many factors. Many factors such as age, mood, posture, the texture and the size of the material and the instrument used for writing, environmental factors, difficulties in writing due to difficulties in learning, neuromuscular and mental illnesses, alcohol, drug and substance abuse cause changes in handwriting. In addition, hand manipulative

on has significant association to handwriting skill (1-7). Physicians write their drug and treatment charts in handwriting on prescriptions and other medical documents when they apply their job in the environment they work. This case is a technical requirement; furthermore it causes a legal responsibility to personify the physician and personalize all medical applications. Physicians especially who serve in clinic, dispensary, village clinic and hospitals with high patient density in our country write many prescriptions or "orders". In addition, writing of the physicians are influenced adversely since they get fast note taking habit from the first years of faculty of medicine and they must write prescriptions, "orders" or reports fast (7-11).

Written communication is of great importance in medical practice and illegible handwriting causes serious problems. Illegible handwritten prescriptions are well-recognized for increasing the risk of medication errors, including prescribing, dispensing, and administration (12,13).

Warfarin sodium, an anticoagulant, is known under the brand name of Coumadin and available in doses of 5-10 mg. It prevents blood clotting and prevents growth of blood clots. (14-16).

Famotidin is used to treat duodenal ulcer and benign gastric ulcers, to prevent duodenal ulcer recurrences and to decrease excessive secretion in such conditions as Zollinger-Ellison syndrome. It is commercially available under the name of Famodin and in doses of 20-40mg (15).

The First Specialization Board of Council of Forensic Medicine in Istanbul is an official expert commission and serves as a supreme board in Turkey. Cases are submitted to this board by the courts asking for a more detailed examination and a final conclusion from all over the country. The Board consists a general surgeon, a cardiovascular surgeon, a neurosurgeon, a gynaecologist, an internist, a cardiologist, a hematologist, an immunologist, a pathologist and three forensic specialists. This Board evaluates whole material in files and tries to determine cause of deaths and reports to the related courts.

People who have to read physicians' handwriting are again physicians, pharmacists and clerks who work in pharmacies. Although the Court asked the cause of death for this case to the First Specialization Board of Council of Forensic Medicine, we present that a case had a mistake of drug dispensing due to an illegible prescription.

CASE

A 65-year-old woman underwent surgery for the treatment of mitral valve failure on 20 December 2005. When she was discharged on 28 December 2005, she was given her prescription (Figure 1). She bought her prescription at a pharmacy. When she finished her drug and went to another pharmacy to buy her prescription, she discovered that she was given a drug different from the one she had just finished. For this reason, she went to hospital for a check-up on 12 January 2006. Prothrombin time test showed an INR of 0.7 and echocardiography showed thrombosis in the mitral valve and atrium. Heparin was initiated and when INR increased to INR 3.6, the patient was operated on 16 January 2006. Sternum was cut through pneumatic saw so that it was opened and mediastinum was entered. Femoral artery was found from right femoral area synchronously and it was

prepared for cannulation. Pump was entered following aortic cannulation and double venous cannulation. Cardiac arrest was achieved through 28 °C systemic hypothermia, cross clamp anterograde blood cardioplegia and local cold and left atriotomy was made. Plenty of thrombus was seen in left atrium and they were cleaned. It was found that prothesis cover was disfunction due to trombus, thrombus and fibrin parts were cleaned from the cover. Left atriotomy was closed and the heart was operated spontaneously. Bradycardic case was observed and pace marker was placed and it operated again. When temperature and pressures became normal, some effort was made to exit from the pump, however, this effort failed. The patient with hypotension was given support of adrenalin, dopamine, dobutrex and pump was entered again upon continuance of hypotension. Intra-aortic balloon pump was placed from right femoral artery and supported. Internal resuscitation was applied in case hypotension state of the patient continued although pump was went off under intra-aortic balloon pump support. A lot of thrombus was taken away from the left atrium and fibrin and thrombus was removed from the dysfunctional prosthetic valve. However, bradycardia and hypotension developed. Then, a pace-maker was placed for the treatment of bradycardia and dopamine and dobutrex were given to correct hypotension. When hypotension worsened, the patient was exposed to internal resuscitation. Unfortunately, she did not respond to resuscitation and died on operation. Since the related doctors had claimed at the time that the death was caused by heart dysfunction and the body of the person had been buried without making autopsy. Relatives of the person died brought suit against the chemist with the claim that the chemist caused the patient to die since while the patient had to take blood diluent following heart valve operation, he/she gave the patient stomach drug instead of blood diluent. The pharmacist who delivered the prescription has been sued for his negligence and carelessness because he gave the patient Famodin 20 mg instead of Coumadin. Approximately one year later, the court hearing the case sent judicial file including allegation and defences and medical documents to the Council of Forensic Medicine and asked that Council to determine death reason of the person. the First Specialization Board of Council of Forensic Medicine concluded in its analysis that; "Although internal or-

Figure 1. The Prescription. Coumadin was highlighted. The names of the patient, the doctor who wrote the prescription and the hospital were covered.

REÇETE T.C. Standart Form No.1 5.101	
Hastanın Adı, Soyadı	Tarih 28.12
Hastanın Kurumu	Dr. Dış. No. Ad (Varsa Kaşesi)
Tabibin Kurumu	
Dr. No: 6	A R
Rp: Coumadin 400 (200 mg) 5: 1x1 ② Cipros 750 1: 1x1 ③ Adactagide 25 1: 1x1 ④ Digoxin 125 (62.5) 5: 1x1 ⑤ Enoxaparin 5mg 2x 1/2	

gan changes could not be searched by making autopsy, death of the person was caused by left atrial thrombus and heart dysfunction occurred during thrombus mitral valve operation based on medical documents contained in the file”.

DISCUSSION

Long-term anticoagulant therapy with warfarin (Coumadin) has been demonstrated to be highly effective in preventing thromboembolic complications in a variety of conditions and disease states (17). It is considered as a deficiency not to make autopsy to the case, and the Council of Forensic Medicine stated death reason of the person based on medical documents.

The chemist against which a lawsuit was brought in the progressing stages of the court may accuses the operating physician for death of the person and may allege that the physician failed in a performing a regular operation. Autopsy is required in order to show invalidity of such an allegation. If autopsy was made to the case to determine death reason, it would be possible to present properties of prostatic heart valve material which was placed on the person’s heart on 20 December 2005 due to mitral valve failure. In addition, both actions made during the operation and death reason would be shown since it was stated that many thrombus were seen on left atrium and prosthesis valve in the second operation on 16 January 2006 and they were cleaned.

It is a fact that doctors may not write prescriptions and other medical records legibly. It has been known that an illegible handwriting may cause mistakes in medications. A verdict reached by The Court of Appeal in Britain was that doctors were legally responsible for writing prescriptions legibly and clearly enough to avoid misunderstandings and any damage to patients resulting from their illegible handwritings and that illegibility of prescriptions might cause other professionals –nurses, pharmacists- make mistakes in drug dispensing (18). In the present case, the doctor did not write the dose of Coumadin in the prescription. It indicates the doctor’s negligence in the prescription. In fact, Coumadin is commercially available in two doses (20-40mg).

When the prescription sent with the file is examined; the drug declared to be "Coumadin" in the first line of the prescription is not readable because the letters aren’t written clearly enough to be differentiated. The

construction of the first letter "C" is different from routine "C". The 3’rd and 4’th letters "u" and "m" are seen as letter "m" as if one letter is written because of rapid hand writing, the following letter "a" is sensed as a transition from letter "o" to letter "d" due to rapid writing of straight line on right side of letter "a". As a result there is a misreading between words "famodin" and "coumadin" although they share some letters phonetically, they are actually different and this misreading is due to similarities of some letters in handwriting. Of the prescription were written by computer letters there would never be a case of misreading unless miswriting of letters existed.

In a study by Karen White, doctors were asked to examine prescriptions written by 50 other randomly selected doctors to determine whether the prescriptions were legible and noted that they could not read what was written in 42% of the prescriptions and the signature in 86% of the prescriptions (19).

In one study, it was emphasized that doctors did not differ in illegibility of handwriting from other people, but focused on individuals’ health rather than legibility of their handwriting and it was recommended that computerised prescription would help to avoid illegible handwriting in prescriptions and other medical documents (20). Another study showed that computerized prescription might decrease mistakes in drug dispensing compared to handwritten prescriptions (20, 21). In Turkey, continuing medical education programs are not available to medical school graduates and doctors specializing in medical disciplines. For these reasons, doctors may not have sufficient knowledge about core substances, doses and generic names of drugs and number of tablets etc. They may worry that patients may not trust them if they look up a drug in a drug manual in front of patients. Writing prescriptions without using a drug manual may predispose to prescribing inappropriate doses of drugs. In the present case, the doctor neglected prescribing the dose of warfarin, which is commercially available under the name of Coumadin in doses of 5-10.

To conclude, illegible handwriting may increase the risk of malpractice and damage to patients. The patient couldn’t get the treatment which was vital for her and consequently died since the patient who must receive anticoagulant treatment following her heart surgery was given a drug which has a different medical effect due to a fault caused by mistaken reading of the prescription. Therefore, prescriptions and

other medical documents should be legible and both medical students and doctors should be offered training for legibility of handwriting including relevant anecdotes. In addition, printed forms might be used,

medical documents might be recorded in handheld devices and prescriptions and other medical documents can be stored in computers to avoid illegible handwriting related problems.

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