

Level of Awareness of Maintaining Dental Records Among Dental Practitioners in Sirte, Libya: Are we Ready for Forensic Odontology?

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Abstract

Objective: To determine the quality of maintained dental records and analyze the knowledge and use of them in any of forensic or medico-legal purposes by Sirte's dental practitioners. **Materials and Methods:** A cross-sectional survey was conducted in a sample of 70 dental practitioners in Sirte and data were collected through a structured questionnaire. The data so gathered were subjected for descriptive analysis.

Results: 80 % of surveyed dentists maintained records but only 10% of them kept the complete dental record. When asked about duration of maintained records, 61% of them kept for less than three years. About 56% of sample used paper prepared form as method to maintain dental records and only 20% used computer software. 91% of practitioners did not think that mandatory to legally maintain the dental records, when asked about whether the legal rights of owning the dental records in Sirte is it medico-legally important, 98% response was yes. The significance of dental records for forensic needs was evaluated, only 18% dental practitioners were asked to produce any records in forensic court of law. Only 3% asked to produce dental file for forensic purposes. 55% of practitioners did not know how to estimate the age of individual. About 94% of sample did not have any training in forensic dentistry. All the surveyed dentists' response was yes, when asked about the importance of forensic dentistry in Libya.

Conclusion: The present study showed Non-maintenance or poor quality of dental records maintained. Our study revealed that the dentists in Sirte are not prepared for any kind of forensic and medico-legal need if it arises due to the poor knowledge, attitude and lack of practice of forensic odontology.

Keywords: *Dental record, Forensic odontology, Sirte's dental practitioners.*

1. Introduction

Dental record is the official detailed document that records all history of the illness, clinical notes, diagnosis, treatment performed that occur in the dental office, including instructions for home care and consent to treatment.

The primary purpose of keeping dental records is fundamental for good quality patient care and means of communication between the treating dentist and any other doctor who will care for that patient. Dental records also have an important role in teaching and research. Since dental remains are usually the last to get destroyed among body parts after death, so dental record may be useful for personal identification in cases of mass disasters, decomposed unidentified bodies and assisting at the scene of crime (Lawney, 1998).

Forensic odontology is branch of forensic science with a broad field of activities. It involves the application of the art and science of dentistry in the identification of carbonized human remains through the comparison of antemortem data - with the postmortem data.

The significance of forensic odontology can be attributed to the ability of the dental tissues to withstand environmental assaults and still retain some of its original structure. This makes teeth an excellent and an accurate source for DNA material (Pretty and Sweet, 2001).

Maintenance of dental records is legally mandatory in most of the European and American countries (ADA, 2004).

Unfortunately, the law of maintenance of dental records are not very clear in Libya and most of the dentists maintaining a poor quality or no dental record at all. Because of that we conducted this survey to determine the level of awareness of Sirte's dental practitioners for importance of dental records and to reinforce them for strict fulfillment of clinical protocols that will provide not only elements for adequate clinical diagnosis and planning, but also for forensic purposes in processes of human identification.

Significance of the Study: This will be considered the first study done in Libya regarding to the quality of oral health record-keeping in clinics as well as the level of knowledge, attitude and practice of medico-legal and forensic odontology.

2. Material and Methodology

A cross-sectional study was conducted among seventy practicing dentists who were selected randomly from different government and private clinics of Sirte city, Libya. The nature and purpose of the survey was explained, and consent was obtained. Each practicing dentist was received his or her questionnaire and data was collected in a personalized manner. A 11-item structured questionnaire was developed to assess the mode of dental records maintenance among dental practitioners. Questionnaire is shown in tables 1.

Statistical analysis was performed using the Statistical Package for Social Science (SPSS) computer software (SPSS 17.0, SPSS Inc., Chicago, USA).

The questionnaire was pre-tested to assess its reliability, which was found to be satisfactory. Test of reliability comprised of question-question reliability, which was assessed by the percentage of agreement (90%). There was no need for any test of significance here as this was a descriptive study.

3. Results

Gender ? A. Male B. Female

Thirty-seven percentage of our sample was male, while female recorded as sixty-three percentage of surveyed practitioners.

How many years of experience in dental field?

A. 0 – 3 years. B. 3 – 10 years. C. more than 10 years.

Dentists with experience three to ten years recorded as fifty-one percentage, while thirty-five percentages of them have more than ten years practice dentistry.

Do you maintain dental records?

Eighty percent of surveyed dental practitioners maintained dental records. Twenty percentage of study sample did not keep dental records in their clinic at all.

Which of the following dental record are maintained?

Surprisingly, complete dental record maintained only by ten percent of surveyed practitioners.

How long time of maintenance of dental records?

When asked about duration of maintained dental records by dentists, sixty-one percent of them kept for less than three years.

What were methods used to maintain dental record?

About fifty-six of sample used paper prepared form as method to maintain these records and only twenty percent of dentists used computer software to keep their patient's records.

Is keeping records legally bound?

Ninety-one percentage of surveyed practitioners response was no, when asked about whether in Sirte is it mandatory to legally maintain the dental records.

Is dental file medico legal importance?

When asked about whether the legal rights of owning the dental records in Sirte is it medicolegally important, 98% response was yes.

Even been asked to produce dental file for medico legal cases?

The significance of dental records for forensic needs was evaluated, only eighteen percent dental practitioners were asked to produce any records in forensic court of law.

Even been asked to produce dental file for forensic purposes?

Very low percent of dentists about three when asked to produce dental file for forensic purposes.

Can you determine the dental age of patient by examining the teeth?

Fifty-five percentages of practitioners did not know how to estimate the age of individual by examining the teeth.

Have you had any training in forensic dentistry?

Majority of sample about ninety-four percentages did not have any training in forensic dentistry.

Are you aware of the importance of forensic dentistry in Libya?

Hundred percent of surveyed dentists response was yes.

4. Discussion

The maintenance of complete dental records professionally which including the personal data, relevant medical, dental history, photograph, radiograph, dental cast, clinical finding, diagnosis and treatment plan became the most important factor needed to protect the dental practitioners against any medicolegal, commercial and legal litigation (Charangowda , 2010).

There are many significant applications of forensic odontology including human remains identification following mass disaster situations that may arise from natural or manmade circumstances through dental records. In addition to that, assist in the identification of suspect in criminal investigations and in medicolegal cases. Furthermore, testify as an expert witness in the court to present forensic dental evidence. With growing field of medicine, the awareness and attitude of dental practitioners toward forensic odontology is essential.

Many victims with severe burn situations and/or following severe disintegration were unidentified. Because visual recognition of facial features and fingerprints is often impossible due to extensive destruction of soft tissue. The identification of these victims could have been made possible if there were adequate forensic odontologists who use the hard (calcified) tissue such as human teeth and bones of jaw for human identification (Valenzuela *et al.*, 2000).

In number of developed countries, the significant applications of forensic odontology have gained importance. While in developing countries like Libya, the practice of forensic odontology is yet very low.

The requirement of the dental records is not always maintained for a forensic purpose only, but also consider as future reference for the practitioners when needed. The level of awareness of the public regarding legal cases involving healthcare has been dramatically increased. This warrants for any dental practitioner to have a thorough knowledge of dental record issues (Charangowda , 2010).

The results of our study did not find any significant relations between gender or duration of experience with quality of dental record maintenance. This survey was conducted among the dentists to assess their knowledge about importance of keeping dental records and the result of this assessment showed that the majority of the dental practitioners were aware of the importance of keeping dental records. Surprisingly, only ten percentages of practitioners maintain complete records and sixty-one percent kept dental records for less than three years. This was in the comparison with the duration of record maintenance as stated by the law, which is range from seven to ten years (Neville *et al.*, 2004).

This survey also showed the awareness of mandatory to legally maintain dental records, majority of dentists answered that it is not mandatory to keep records. Regarding the forensic odontology, the results show that the awareness of forensic dentistry among the dentists is not adequate.

One of the essential factors in the identification of a person is age. Human age estimation is a procedure adopted by forensic scientists and anthropologists (Balwant Rai, 2006; Singh *et al.*, 2004). About Fifty-five percent dental practitioners did not know how to estimate the dental age of individual by examining the teeth. This may be attributed to the lack of basic knowledge about dental age.

The result of our study was in agreement with another study done by Osborn *et al.* (2000) to assessed the quality of keeping of dental record where used questionnaire to survey a random sample of 750 dental practitioners from Minnesota state. Kept of dental record was based to the guidelines of ADA. They concluded that the dentists maintained inadequate dental record components.

Helminen *et al.* (1998) designed a study on the sample consisted from Finnish dental practitioners who were born in 1966-1971. Dental record maintained according to the instructions of Finnish health legislation and the study done to evaluated the quality of maintenance of dental record. The results of the analysis showed that the dental practitioner with age younger than 37 years and female dentists tended to record complete dental record. In addition to that dental record of each patient was available in 90% of documents.

Borrman *et al.* (1995) carried out study to investigate the maintenance of dental records of cases in forensic medicine department in Göteborg between 1983 and 1992. Dental record maintained according to the National Board of Health and Welfare. The outcomes of the study showed that the complete dental records were in sixty-eight percentage of sample, incomplete record were in twenty-seven percentage and no record at all in five percentage.

However the outcomes of our survey suggest that the dental practitioners in Sirte, Libya, either don't have dental records or have the ones which are inadequate. This indicates that these dentists are not at all prepared for any kind of medico legal and forensic needs. This result also sends an alarm for raise the level of awareness for keeping good quality dental records.

The overall quality of record-maintaining was poor, and this result was in agreement with the findings suggested by worldwide studies (Osborn *et al.*, 2000; Helminen *et al.*, 1998; Borrman *et al.*, 1995; Delattre and Stimson, 1999; Morgan, 2001).

From the results of these studies, the inadequacies and inaccuracies of guidelines and systems of many existing dental record, which do not prompt the dental practitioners to keep good quality of recording, a new form of record guidelines should be made available to encourage the dentists for what should be routinely recorded.

A proper system document on maintaining dental in dental practice should be designed (Ireland *et al.*, 2001). To achieve the improvement in keeping the standard of maintaining record, proper education is to be given among undergraduates (Pessian and Beckett, 2004) and postgraduates and also increase the level of awareness in dental practitioners (Cole and McMichael, 2009).

There are many responsibilities of dental practitioners which include production, retention, and release of accurate dental records. Practicing dentists can become valuable members of the dental identification process which considered as large part of the science of forensic odontology (Samadi *et al.*, 2009).

5. Conclusions

The present study showed Non-maintenance or poor quality of dental records maintained. Our study revealed that the dentists in Sirte are not prepared for any kind of forensic and medico-legal need if it arises due to the poor knowledge, attitude and lack of practice of forensic odontology. However, the study was done in Sirte city, the story is not much different in other cities and it can reflect the existing picture of the whole Libya.

Recommendations:

From the results of our study, further researches with larger sample size are required to determine the level of awareness of significant implications of dental records. The result of inadequate maintenance of dental record components should be targeted to encourage the dental practitioners to better utilize the significant implications of dental records.

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Table 1: Questionnaire used in the study.

Questionnaire used in the study:
Gender A. Male. B. Female.
How many years of experience in dental field? A. 0 - 3 years. B. 3 - 10 years. C. more than 10 years.
Do you maintain dental records? Yes/No
Which of the following dental record maintained? A. Personal data. B. Medical and Dental history. C. Study Models. D. Photographs. E. Radiographs. F Clinical notes. G. Diagnosis. H. Treatment plan.
How long time of maintenance of dental records?
Record maintenance by A. Prepared form. B. software. C. Both.
Is keeping records legally bound? Yes/No
Is dental file medico legal importance? Yes/No
Even been asked to produce dental file for medico legal cases? Yes/No
Even been asked to produce dental file for forensic purposes? Yes/No
Can you determine the dental age of subject by examining the teeth? Yes/No
Have you had any training in forensic dentistry? Yes/No
Are you aware of the importance of forensic dentistry in Libya? Yes/No