

# An assessment of dentist's knowledge regarding management of medically compromised patients during invasive dental procedures

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## Abstract

**Introduction:** The dental management of medically compromised conditions is of importance due to concerns regarding associated oral complications and emergency care. The compromised systemic conditions may predispose oral tissues to other diseases, or they may interfere with the normal healing process. The main aim of this study was to evaluate the awareness and knowledge of dentists about medical problems that a dentist or specialist may encounter in their routine practice.

**Material and Methods:** A questionnaire based study was carried out in different teaching Dental Hospitals of Rawalpindi and Islamabad. The questionnaire comprised of 20 multiple choice questions to assess knowledge of dentists regarding dental management of different medically compromised conditions. 300 questionnaires were distributed to all practicing dentists including house officers, demonstrators, post graduate residents and faculty members of clinical departments of 5 teaching hospitals. The data was analysed using SPSS statistics version 17.

**Results:** There was no statistical difference in knowledge between faculty, post graduate residents, demonstrators and house officers. However, the mean score of post graduate residents was found slightly higher. Out of a total score of 20, the overall mean score was calculated as 8.82 with a standard deviation of 2.995.

**Conclusions:** It was found that majority of dentists lack the necessary knowledge for dental management of patients presenting with medically compromised conditions. Thus, training regarding dental management of patients with systemic illness or medically compromised conditions should be mandatory at under and post graduate level in accordance with latest guidelines and should be considered a part of dental curriculum.

**Keywords:** Systemic conditions; dentist's attitude; immune-compromised patients

## Introduction

The progress in medical technologies and betterment in health care facilities has increased life expectancy.<sup>1</sup> A significant decrease in edentulism has been

reported in various studies. As a consequence, teeth remain in mouth for longer periods of a person's life. This leads to long term exposure to the action of biofilm and increases the susceptibility of developing periodontal diseases.<sup>1</sup>

Increased life expectancy necessitates the dental treatment of considerable number of old and medically compromised patients.<sup>1,2</sup> Medically compromised patients are defined as patients whose medical conditions restrict their access to dentistry in general dental

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practice.<sup>3</sup> The compromised systemic conditions may predispose oral tissues to other diseases or they may interfere with the normal healing process.<sup>4</sup>

The dental management of medically compromised conditions can be troublesome regarding oral complications, the dental procedure itself and emergency care.<sup>5</sup> These patients cannot usually tolerate complicated and fatiguing dental treatments.<sup>6</sup> It is unfeasible for a single person to have comprehensive knowledge of systemic problems. However, some basic guidelines are available to enable dentists identify and hence avoid any probable risks in such patients.<sup>7</sup> These include obtaining a detailed medical history before dental treatment. Adjustments in treatment plans are required to provide simplest possible treatment without stress or to avoid any expected interaction with their medications.<sup>8</sup> For example medicines advised for certain specific condition can possibly generate problem during administration of local anaesthesia or may also interact with analgesics prescribed by dentist post-operatively. Additionally, with increase in knowledge and awareness, patients' demand for rehabilitation of dentition is more inclined towards implantology.<sup>2</sup> Whereas some medical conditions absolutely contraindicate implant placement followed by a number of those which may multiply the risk of implant failure.<sup>9</sup>

The most prevalent medical problems encountered in Pakistani population are; hypertension, angina, prosthetic heart valves, renal diseases, diabetes and liver diseases.<sup>3</sup> Besides the aforesaid conditions, patients with bleeding disorders or those on steroid therapy, undergoing radiotherapy and bisphosphonates therapy are also of special concern for dentists. This corresponds to the need that during treatment, dentists should be aware of possible effects of conditions on dental or oral soft tissues.<sup>1</sup> Furthermore, some medications also pose limitations in performing certain dental procedure. The

main aim of this study was to evaluate the awareness and knowledge of dentists about medical problems that a dentist might experience in their routine practice. Some medical problems of patients require extra knowledge and care to prevent any possible and unexpected complications that may lead to unnecessary morbidity and mortality. We also wanted to find out whether dentists have sufficient background knowledge to deal with any such patient when encountered in their practice.

## Material and Methods

A questionnaire based study was carried out in different teaching Dental Hospitals of Rawalpindi and Islamabad. The questionnaire was based on guidelines of British Dental Association and was approved by the Ethical Review Board of Riphah International University, Pakistan. Participants were assured of complete anonymity and confidentiality. They were advised to fill the questionnaire without consulting any reading material or discussing with their colleagues.

The questionnaire was divided into six different sections from A-F. The first five sections comprised of 20 multiple choice questions to assess knowledge of dentists regarding dental management of different medically compromised conditions during invasive dental procedures. These included patients with cardiac problems, chronic renal failure, diabetes, bleeding disorders and patients on anti-coagulant therapy, on steroids, bisphosphonates or radiotherapy. Each correct response was scored as 1 and incorrect was scored 0.

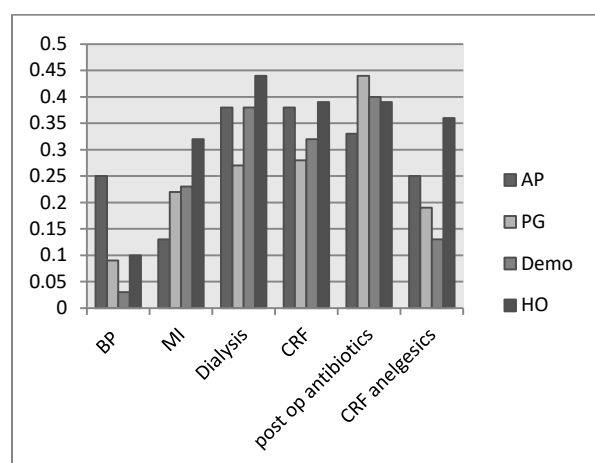
The last section was based on demographic details including designation of the dentist, gender and age group.

300 questionnaires were distributed to all practicing dentists including house officers, demonstrators, post graduate residents and senior faculty members including Assistant / Associate Professors working in Clinical Departments of five Teaching Hospitals of twin cities namely; Islamic International

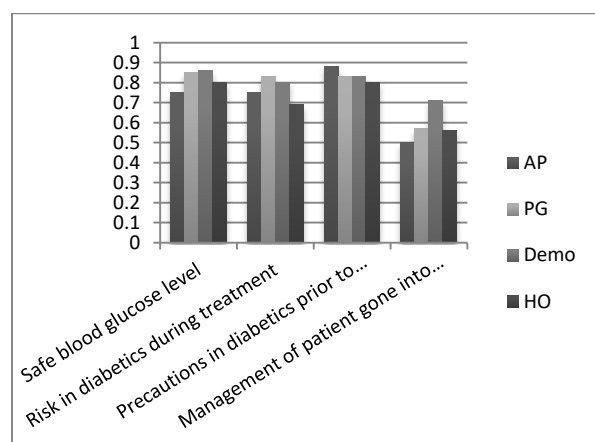
Dental Hospital, Margalla Institute of Health Sciences, Rawal Institute of Health Sciences, Islamabad Medical & Dental College, Pakistan Institute of Medical Sciences and Yusra Medical and Dental hospital.

## Results

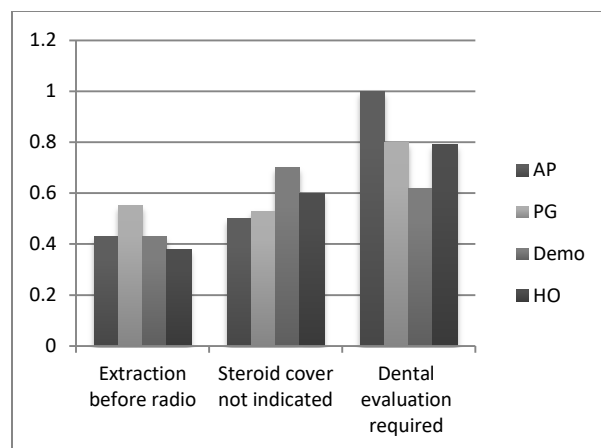
Out of 300 distributed questionnaires, 264 were returned with female predominance (66.3%). No statistical difference was observed among different levels of experience except for the post graduate resident. ANOVA revealed no statistical difference in the knowledge between the groups (Figures 1 to 4 and Table I).



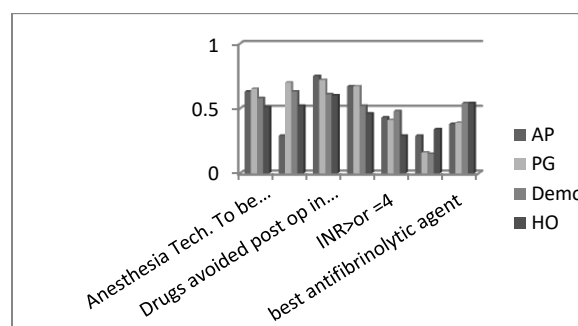
**Figure 1: Knowledge of the groups regarding patients with cardiac and renal problems.**



**Figure 2: Knowledge of different groups regarding diabetic patients**



**Figure 3: Knowledge regarding patients on radiotherapy, steroid cover and bisphosphonate therapy**



**Figure 4: Knowledge regarding various blood disorders**

**Table I: Table showing mean score of each group**

Designation	N	Mean
Faculty	8	8.63
Residents	47	9.04
Demonstrators	42	8.86
House officers	167	8.88
Total	264	8.90

## Discussion

The results of the present study show no statistically significant difference between the knowledge levels of these groups, regarding the dental management of medically

compromised patients. However, the mean score of post graduate residents was found slightly higher. This was found in contrast with Alshammery et al. who reported comparatively low level of knowledge of senior students and dental interns.<sup>10</sup>

With increased awareness of dental treatments, a large population of elderly people is also encountered by dentists. Old age is often associated with certain medical problems.<sup>10</sup> The National Centre for Health Statistics has recorded that 15% of adult population above 65 years of age may have chronic medical conditions. Studies conducted in Karachi by Daud et al and Lakhani et al revealed that 18.6% and 23.4% of patients had significant medical history.<sup>3,10</sup> This was in agreement with a study conducted in Hayatabad, indicating 22.9% medically compromised patients.<sup>4</sup> In contrast, a study from Thailand reported prevalence of medically compromised patients to be 12.2%.<sup>1</sup> Medical conditions reported were mainly, hypertension, angina, prosthetic heart valve, renal disease, diabetes, liver diseases, bleeding disorders, steroid therapy, radiotherapy or bisphosphonate therapy.<sup>3</sup> All such conditions are of special concern for a dentist on account of attention required during dental procedures or prescribing medicine. These compromised patients have moderately more chances of experiencing medical emergency on dental chair or in some cases undesirable experience post-operatively. E.g., patients with cardiovascular diseases may have to confront symptoms of acute cardiac events. Discontinuing warfarin is not recommended as it may lead to life threatening thrombosis hence use of local measures following procedures is advised in all patients on warfarin and also those with bleeding disorders.<sup>13</sup>

Exceptional concern in chronic kidney diseases is that treatment should be scheduled on a day following dialysis followed by careful prescription of medicine. Diabetic patients have liability to infections

and during the procedure may experience hypoglycaemic attack.<sup>10</sup>

Hence an adequate knowledge of medically compromised conditions is essential for dentists to provide safe dental treatment to patients with systemic conditions.

## Conclusions

Findings of the present study have shown that majority of dentists lack the necessary knowledge for dental management of patients presenting with medically compromised conditions. Difference in experience level has no significant effect on the results. After evaluation of results there are few recommendations:

- i. Dentists should have good knowledge levels in treating these patients in order to avoid any sort of emergencies and complications.
- ii. There can be legal complications for any unfavourable condition occurring on dental chair because of negligence. Therefore, having adequate knowledge is mandatory for safety of dentist themselves.
- iii. Training regarding dental management of patients with systemic illness or medically compromised conditions should be made compulsory at under and post graduate level in accordance with latest guidelines and should be considered a part of dental curriculum.
- iv. For practicing dentists, different short courses and educational workshops should be made mandatory at under and post graduate levels to enhance awareness among various groups of dentists and to keep them up to date with recent guidelines.

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