WHEN ORAL AND SYSTEMIC HEALTH CONNECT

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Interprofessional Collaboration (IPC) is vital in promoting coordination of care across the continuum of health care and in all settings. Dentist-physician collaboration is vital in screening undiagnosed and undertreated systemic diseases such as hypertension, that leads to improved monitoring and treatment.

A 42-year-old male Cuban immigrant presented to our IPC with tooth pain, facial swelling and high blood pressure. Working together, the Interprofessional Education (IPE) team managed the patient's high blood pressure, leading to a sustained 15-20 mmHg reduction in blood pressure. His risks for caries infection and periodontal disease were also reduced from High to Moderate risk.

CASE OBJECTIVES AND USE

Following discussion of this case, readers should be able to recognize:

1. A medical condition (hypertension) that was exacerbated by unmet dental needs.
2. The importance of student clinical experience in oral health within an interprofessional collaborative team of dental and medical students and faculty (medicine and dentistry).
3. A testimonial care delivery experience that involved collaborations between primary care and dental providers.

INTRODUCTION

The purpose of the case is to demonstrate interprofessional collaborative efforts between dental and medical professionals towards patient safety. This scenario intends to demonstrate that the dentist-physician collaboration is vital in screening undiagnosed and undertreated systemic diseases such as hypertension, leading to improved monitoring and treatment. This case provides sufficient information so students or practitioners can view through a team IPE approach addressing the oral and systemic health connection. This connection is centered at the patient's hypertensive condition and the providers' attempt to manage systemic health while addressing oral infection and disease prevention.

Hypertension is one of the most commonly diagnosed diseases worldwide and is associated with cardiovascular risk and mortality. Dental practitioners can be on the frontlines of prevention of hypertension by evaluating preoperative blood pressure readings and knowing when to acquire medical consultation of a hypertensive patient.[1]

Interprofessional collaboration (IPC) is vital in promoting coordination of care across the continuum of health care in all settings. Working as members of the interprofessional education (IPE) team promotes the sharing of knowledge and working towards a common goal where each professional learns about the other's roles and responsibilities. The Institute of Medicine reports also outline the "positive impact that interprofessional collaboration and teamwork can have on key dimensions of organizational performance."[2]

The San Antonio Refugee Health Clinic (SARHC), as an Interprofessional Education (IPE) collaborative between dental, medical and nursing students and faculty from UT Health San Antonio (UTHSA) addresses the health needs of immigrant refugees living in northwest San Antonio. A central function of the clinic is the education and connection between refugee patients and UTHSA students and faculty through approaches to holistic and preventive primary health care practices. Through organizing and managing the clinic, students learn valuable lessons in cultural humility, communication, and resourcefulness through an irreplaceable IPE approach to care. During 2017-2019, an unmanaged hypertensive patient who presented initially with chronic periodontitis benefited from collaborative preventive practice between dental and medical students and faculty.

THE PATIENT

In December 2017, a 42-year-old male Cuban immigrant presented to the San Antonio Refugee Health Clinic (SARHC) with tooth pain and facial swelling. An interprofessional team consisting of dental, medical and nursing faculty and students met and interviewed the patient with Spanish language assistance from an interpreter. He complained of 7 out of 10 tooth pain that started several months ago and worsened over the past week. He stated, “In Cuba they left part of the tooth inside and that is why I have pain now.” The patient was taking Cephalexin 500 mg every six hours, which he received from a family member in Cuba by way of mail service. The patient denied any past medical history.

SOCIAL HISTORY

The patient had arrived in San Antonio in 2013. His journey began in 2008 when he left Cuba for Honduras. He noticed that after this trip his blood pressure had worsened. He spent $10,000 to travel from Cuba to Honduras and another $7,000 to go to Texas from Honduras. His financial resources left him with very limited funds towards health care. In addition, he revealed working as an outdoor gardener up to 12 hours a day, seven days a week. He expressed that due to his stressful daily life he smokes about 7-

9 cigarettes a day. His maternal grandfather had high blood pressure. Patient reported limited daily oral hygiene practices.

ORAL AND PHYSICAL EXAMINATION

Oral Health Assessment revealed a 1x1mm white well demarcated hard pustule by tooth #7 with associated right submandibular lymph node tenderness and generalized chronic periodontitis that was later confirmed by dental radiographs. Review of Systems assessment found the patient to be hypertensive with a BP of 170/114.

ASSESSMENT AND MEDICATION

Currently, research is in its early stages of determining a potential relationship between inflammatory conditions of the mouth and heart. Managed periodontal health is associated with better systolic BP profile during antihypertensive therapy by about 2.3 to 3 mmHg.[3]

Based on the above knowledge, the IPE team decided to optimize hypertension control prior to the indicated oral surgical intervention. Amlodipine 10mg daily was prescribed and screening labs were ordered. Additionally, Cephalexin was discontinued. For pain control, the team recommended a combination of Ibuprofen 600mg and Acetaminophen 325mg every six hours. Tobacco cessation information was provided through the interpreter.

FOLLOW-UP CARE

The patient was evaluated and followed up for lab results and medication adjustments. The patient's blood pressure was 155/102 and he reported experiencing palpitations and lightheadedness over the weekend. His anti-hypertensive medication dose was reduced to 5mg. He was also recommended to start Hydrochlorothiazide 25mg daily and to continue with the reduced dose of Amlodipine 5mg daily.

With improved hypertensive therapy management, the patient was referred to the UTHSA, School of Dentistry (SOD) where a confirmed diagnosis of chronic periapical abscess related to tooth #7 leading to infection spreading to the periapical tissues related to tooth #6 was done by a periapical radiograph (see Figure 1). During that appointment, teeth #6 and #7 were extracted and the patient was discharged with 5 days of Amoxicillin 500 mg to be taken orally every eight hours. The following month, the patient was evaluated at a bi-annual dental clinic associated with SARHC clinic and had teeth #3, 8, 9 and 12 extracted. Two months following these dental extractions, the patient's pain significantly improved. Furthermore, he reported compliance with his anti-hypertensive medications with a clinic blood pressure of 136/82.

Over a two-year period, the team recorded several blood pressure measurements with a range of 129-142/87-99 and continued medication compliance. Moreover, the patient had been treated for seven additional appointments at the SOD where scaling and root

planing, oral hygiene instructions and restorations were completed to reduce his risk of dental caries and periodontal disease. Patient had improved from high to moderate caries and periodontal disease risk levels. Future anticipatory treatment for this patient is to provide tobacco cessation and understanding the link between tobacco use, hypertension and oral cancer. The patient completed his restorative stage of dental treatment with strong emphasis on oral hygiene instructions. He is currently evaluating his finances to receive upper and lower removable partial dentures.

CONCLUSION

Interprofessional communication allowed for optimal perioperative pharmacologic management of the patient's hypertension. Through optimization of his hypertension, oral surgical intervention was therapeutic for reduction in pain, resolution of infection and a sustained 15-20mmHg reduction in blood pressure over a period of two years.

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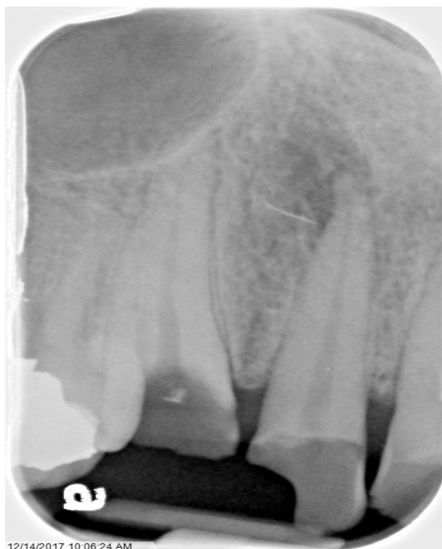

Figure 1: Periapical radiograph of teeth #6 and 7