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Implementation of a Peri-Procedural Smoking Cessation Program in Patients with Chronic Pain Undergoing Interventional Pain Management Procedures

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Abstract

Despite accounting for the most preventable deaths per year in the United States, smoking rates continue to decrease with 14% of Americans reporting smoking in 2019. Among reported successful smoking cessation techniques, pairing of cessation attempts with a surgical procedure, which accounts for approximately 8% of all quit events in the United States, has shown effectiveness. Utilizing this metric, we sought to pair smoking cessation with an interventional pain procedure, hypothesizing that this major event would be an optimal time to encourage cessation. Thus, patients presenting for interventional pain procedures who were current smokers were counseled on smoking cessation and referred to Cooper's tobacco cessation program. Due to the COVID-19 pandemic, all counseling was done over the phone by certified tobacco cessation counselors. Of the 91 current smokers approached about further smoking cessation via personal counseling, 11 agreed to the intervention (12.1%). Of the 11 patients who agreed, 5 met with the cessation counselors over phone. The average number of counseling sessions per person were 3.6. Of the 5 patients who met with the cessation counselors, the average daily cigarette use dropped from 18 to 9 cigarettes per day compared with those who did not partake in the counseling program who averaged 12.6 and 12.2 cigarettes per day, (OR = 1.94; P = 0.286) at an average follow up time of 117 days. Of the 5 patients who met with the cessation counselors, all indicated that the program was helpful, and 1 was lost to follow up due to coordination issues. Of the 6 patients who did not meet with cessation counselors, 3 indicated that they were not ready for smoking cessation, and 3 indicated that there had been coordination issues. There is currently no standard of care among physicians for treating nicotine dependence in patients who present for unrelated reasons, yet there is significant interest among smokers in cessation, and individualized counseling can help them reduce cigarette use. Proper interventions can be made even during a global pandemic where counseling is completely remote. Thus, there should be widespread convenient cessation programs available to patients, that practitioners are aware of, and a simple standardized process of referral.

Purpose or Objectives

- Assess whether smoking cessation counseling affects self-reported smoking habits of patients undergoing chronic pain injections
- Encourage smoking cessation among patients who seek care for an unrelated reason
- Develop a streamlined referral process for patients and clinicians who are seeking increased support for nicotine cessation



Introduction

Cigarette smoking is the leading cause of preventable disease and death in the United States, responsible for more than 480,000 deaths every year, which translates to an astounding figure of about 1 in 5 deaths. Additionally, smoking accounts for 90% of lung cancer deaths and 80% of COPD deaths each year.¹ Regarding morbidity and increased health risks, cigarette smoking increases risks of diseases of nearly all organs of the body, to include stroke, coronary artery disease, and numerous cancers, among many others.² However, the silver lining embedded in these grave outcomes is that smoking rates have been on a continual downward trend in the United States. As of 2019, 14% of adults in the US smoked cigarettes compared to 20.9% in 2005, and 25.5% in 1990.^{3,4} Additionally, treating tobacco dependence is exceptionally cost-effective, as treatment is inversely proportional to cost per quality adjusted life-year (QALY).⁵ (Table 1)

There have been many reported successful smoking cessation techniques, including counseling, self-care, nicotine replacement, and intensive cessation programs among others. One cessation technique that has shown promise is the pairing of cessation with a major surgery, which accounts for approximately 8% of all quit events annually in the United States.⁶ This idea incorporates using surgery, a major life event, as a teachable moment, and distinguishable intervention point for smoking cessation.

Medical Screening Tests of Interventions	Cost per Year of Life Saved
Tobacco-dependence pharmacotherapy and intensive physician involvement	\$1,108
Pneumovax	\$1,500
Tobacco dependence (minimal intervention)	\$4,329
AIDS pharmacotherapy	\$6,553
Heart transplantation	\$16,239
Hypertension screening	\$23,335
Hyperlipidemia pharmacotherapy	\$36,000
Annual mammography	\$61,744
Hypertension pharmacotherapy	\$72,100

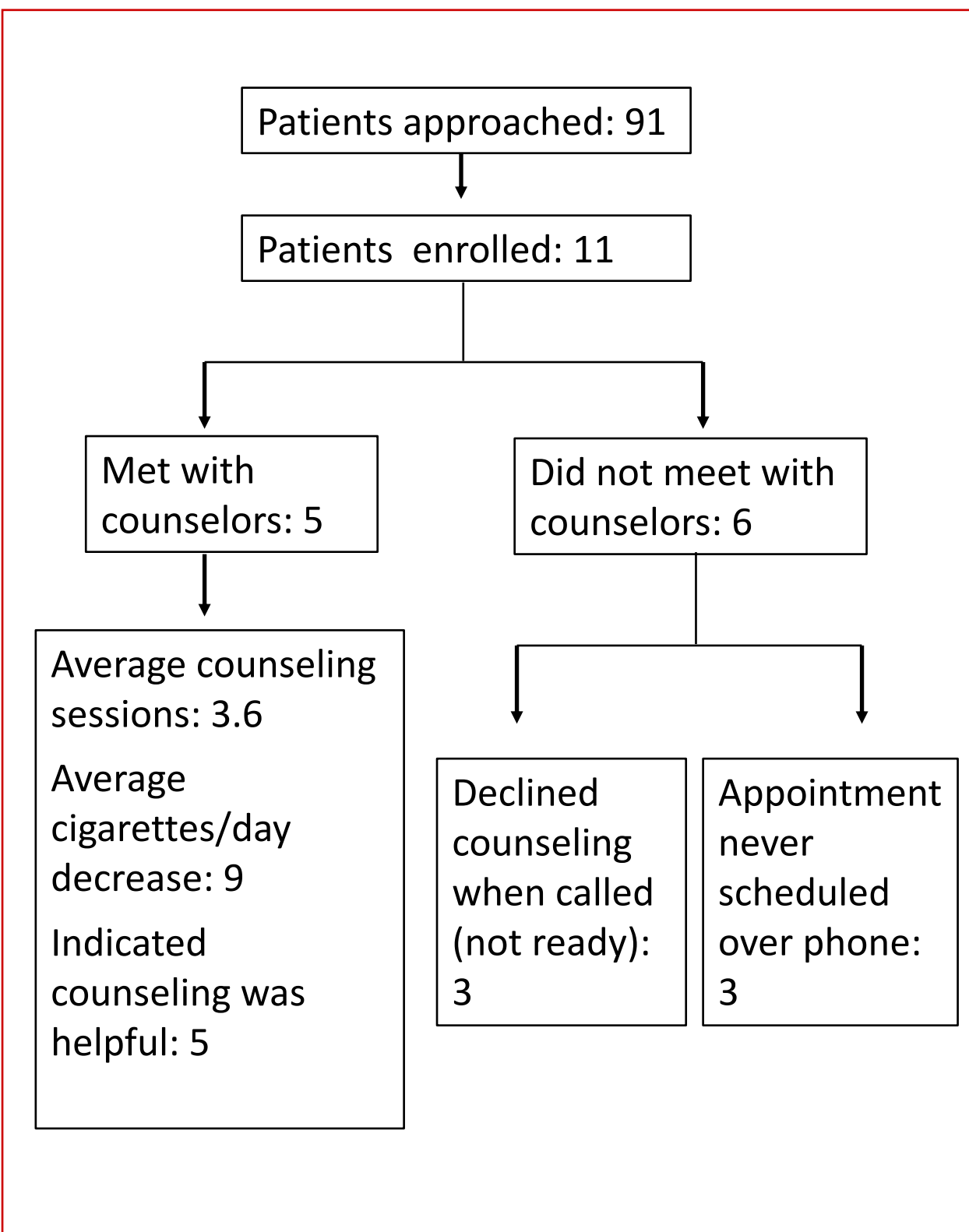
Table 1: Cost-effectiveness comparison of tobacco-dependence treatment with common medical tests and interventions⁵

Cessation Intervention	Odds Ratio
Self-help behavior intervention	0.8 – 1.7
Screening/Brief advice from physician	1.3 – 2.0
Individual and group therapy and/or counseling	0.7 – 2.5
Pharmacological aides	1.5 -4.9

Table 2: Odds ratios of effective tobacco cessation interventions⁷

Methods

Patients undergoing interventional pain procedures in the same day, short procedure unit at Cooper University Hospital were screened for tobacco use. If patients met inclusion criteria they were asked if they were interested in participating in smoking cessation counseling over the course of several months and being followed by telephone survey. If agreeable, patients received brief counseling on smoking cessation on the day of their procedure, filled out an initial survey, and received a referral to Cooper University Health Care's tobacco cessation program. The tobacco cessation program is composed of a team of certified tobacco treatment specialists, who utilize individual counseling, pharmacologic therapy, nicotine replacement, among other techniques and is a free service to all Cooper patients. Due to the COVID-19 pandemic, all counseling sessions were offered solely via telephone. Patients were followed via telephone survey between 1 and 6 months following their date of enrollment. They were polled on their smoking habits, thoughts on the cessation program, current pain levels, and how effective they thought their pain procedure was.



Results

Of the 91 current smokers approached about further smoking cessation via personal counseling, 11 agreed to the intervention (12.1%). Of the 11 patients, 10 smoked cigarettes daily and one vaped daily. 5 of the patients followed up and met with the cessation counselors over phone. The average number of counseling sessions were 3.6 over a 3-month period and the average time between enrollment and follow-up survey was 117 days. Of the 5 patients who met with the cessation counselors, the average daily cigarette use dropped from 18 to 9 cigarettes per day compared with those who did not partake in the counseling program who averaged 12.6 and 12.2 cigarettes per day (OR = 1.94; P = 0.286) at their initial and follow up dates. Of the 5 patients who met with the cessation counselors, all indicated that the program was helpful, and 1 was lost to follow up due to coordination issues. Of the 6 patients who did not meet with cessation counselors, 3 indicated that they were not ready for smoking cessation, and 3 indicated that there had been coordination issues.

Discussion

Limiting factors during this project included recruiting and individualized in person counseling during a pandemic. Ideally, patients would have face to face counseling on days when they came for pain procedures, or other scheduled times convenient to them. Substituting personalized in person counseling strictly with phone calls is predicted to have a lesser impact on cessation and the quality of the relationships built between the cessation counselors and patients. Regarding follow up, miscommunications and timing of appointments proved more difficult over the phone in the current climate. Additionally, it may be more difficult for patients struggling with chronic pain to achieve tobacco cessation, given differences in pain tolerance, and effects of tobacco use and cessation on pain levels. Further study is needed to elucidate the complex effects of tobacco on pain perception.

Conclusion

There is significant interest among smokers in cessation, and individualized counseling can help them reduce cigarette use. Proper interventions can be made, even when counseling is completely remote. Thus, there should be widespread convenient cessation programs available to patients, that practitioners are aware of, and a simple standardized process of referral. Patients with chronic pain should be offered interventions for smoking cessation during all visits including those solely related to pain management.

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