

OFP

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EDITOR'S MESSAGE

What's in Your Waiting Room?

RESEARCH ARTICLE

Addiction, Cessation, & Harm Reduction:
Primary Care Provider Knowledge &
Perceptions of Electronic Nicotine
Delivery System

Physician's Perspective & Influence
on Patient Education Resources in the
Waiting Room

REVIEW ARTICLES

Abnormal Loss of Weight

Erectile Dysfunction for the
Family Physician

CLINICAL IMAGES

Pediatric Axillary Rash

PATIENT EDUCATION HANDOUT

Erectile Dysfunction



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Osteopathic Family Physician is the ACOFP's official peer-reviewed journal. The bi-monthly publication features original research, clinical images and articles about preventive medicine, managed care, osteopathic principles and practices, pain management, public health, medical education and practice management.

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- Approach to Polyarthritis for the Primary Care Physician
- Chronic Abdominal Pain: Tips for the Primary Care Provider
- Combating the Opioid Prescription Epidemic: Appropriate vs. Inappropriate Prescribing
- CPPD: Common and Under Recognized
- Direct Primary Care: Emerging Practice Alternative
- The Food Allergy Revolution
- Gas, Bloating and Belching: Tips for the Primary Care Physician
- Irregular Menstrual and Postmenopausal Bleeding: Now What?
- Newborn Disorders & Nutritional Guidance
- Patient Engagement
(Help define the science of engaged research, provide tangible examples of the impact of engaged research, or answer a question or controversy related to patient engagement.)
- Working Effectively with Patients with Borderline personality

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Discussion

Introduction

Conclusions

Methods

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Results

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EDITOR'S MESSAGE

What's in Your Waiting Room?

Amy J. Keenum, DO, PharmD, Editor, Osteopathic Family Physician

The article, *Physicians' Perspective and Influence on Patient Education Resources Used in the Waiting Room* reviews a 20-item survey of 50 family physicians about their office waiting rooms. No surprise to find that the doctors who had ownership of the practice were more interested in what happens in the waiting room. Should it be an educational place or a place for relaxing prior to the stress of an office visit? Male doctors were more interested in waiting room activities than were female doctors. The authors admit to having a limited sample size and the lack of disclosure of the total number of people sent the survey resulted in a patient response rate not being available.

A review article, *The Diagnosis and Treatment of Erectile Dysfunction* is included this month, and reviews risk factors, pathophysiology, and standard treatments.

We continue to present our Clinical Images column and this month feature Pediatric Axillary Rash.

An excellent review article this month reviews the definition and evaluation of abnormal weight loss. This is a disturbing finding in clinical practice when it is determined the patient is not trying to lose weight. Concerns for occult malignancy are high while other metabolic diseases can usually be quickly evaluated with laboratory studies.

We run the results of a survey indicating that health care providers think electronic nicotine delivery systems are addictive. They recruited a small group that included physicians, nurse practitioners and physician assistants to complete their survey. Helping patients quit smoking is a large part of care as an osteopathic family physician but moving a smoking patient to e-cigarettes is not smoking cessation.

So, if you have not been one to spend time in your waiting room - sit there for a few minutes. See what reading material is in that area. Is it what you want your patients to read while waiting to see you? If not, remove it and add materials you find helpful to patients. We are considering improvement of that area as many of our patients arrive by bus and spend a long time in our waiting room.

FROM THE PRESIDENT'S DESK



Osteopathically Yours

Larry W. Anderson, DO, FACOFP *dist.*

2016 - 2017 ACOFP President

As I wind down my years as ACOFP President, I'd like to thank you for your support and to recap some of the initiatives that ACOFP will continue to support this year.

During my inauguration speech nearly a year ago, I talked about my philosophy as ACOFP president - "DO all the good you can DO." That sentence starts and ends with a "DO."

As I spoke of it then, it came from a partial quote from John Wesley, the leader of the Methodist movement where he said:

"Do all the good you can. By all the means you can. In all the ways you can. In all the places you can. At all times you can. To all the people you can. As long as ever you can."

So I still challenge all of you to not hide the light of osteopathy. Please seek out others who you may inspire and that they may see the shining light of our profession.

In March during the 2017 ACOFP convention, I will pass torch to Dr. Rodney Wiseman, a family physician in private practice from Pearland, Texas, located outside of Houston.

Among his many honors, Dr. Wiseman is a past recipient of the ACOFP Osteopathic Family Physician of the Year Award and the Texas Society of the ACOFP Family Physician of the Year Award and the Texas Osteopathic Medical Association Distinguished Service Award.

Also, Dr. Wiseman served in the U.S. Army as a combat medic with the 101st Airborne in Vietnam and was awarded the Bronze Star.

So it's clear I leave the ACOFP in capable hands.

It has been a pleasure meeting many of you as your president during my travels to state societies and college. Thank you for the opportunity to serve you.

ACOFP President Travel

One of the honors of being an ACOFP president is traveling to state societies and osteopathic colleges where I met so many dedicated professionals, residents and students. Looking back, I traveled to 15 destinations to induct new state presidents, meet students and attend osteopathic meetings.

State Societies: Ohio ACOFP, Oklahoma ACOFP, Maine ACOFP, Florida ACOFP, Indiana ACOFP, Oregon ACOFP, North Carolina ACOFP, Missouri ACOFP.

From the American College of Osteopathic Family Physicians.

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Groups and Events: DO Day on the Hill, Primary Care Summit, Society of Teachers of Family Medicine - Precepting Summit, San Juan Secretary of Health, President of Puerto Rico University System, Mayor of San Juan, Puerto Rico District Governor for Rotary, Grand Master of Masons in Puerto Rico, Promotional Video for Tour Puerto Rico, Mayor's Office Atlanta, Working Party AAFP, Congress of Delegates AAFP, AOA Winter Meeting, Student Chapter Family Medicine Sponsor and Chairs of Family Medicine.

Practice Transformation Toolkit

The ACOFP has developed a Practice Transformation Toolkit. This kit defines CMS Quality Payment Program (QPP) categories and how to report effectively.

This year you must report on Quality, Advancing Care Information, Clinical Practice Improvement Activities, and Resource Use for a Composite Performance Score (CPS). The CPS is used by CMS to calculate your Payment Modifier that is the penalty or incentive payment you will receive on each Medicare Part B patient. The maximum penalty or incentive is four percent. Penalties and incentives will reach nine percent in 2020.

That why the ACOFP created this kit. I will help you complete each of these categories to maximize payment. The kit's six sections offers the best-of-the-best information on each topic. It also includes the steps and deadlines needed to complete each category and CMS links about registration for a National Provider Identifier (NPI) number. Here you can set up an account through the CMS Enterprise Portal where you can view your CMS quality score twice per year.

Single GME Accreditation System Update

We are now less than 10 months away from the ACGME deadline to have our osteopathic family residency programs apply for ACGME accreditation. The ACOFP Committee on Education and Evaluation is reaching out to all programs that have not applied and is working with those who have received conditional pre-accreditation status.

Of 158 osteopathic-only programs, 46 programs have applied for Single Accreditation System. ACOFP's phone campaign results have indicated that out of the remaining 112 programs, 62 are working on the application. The remaining programs that are uncertain. ACOFP leadership is working with them and will offer assistance in the application process.

Family Medicine for American's Health

The ACOFP continues to partner with Family Medicine for America's Health, a consortium of family medicine groups, which includes the ACOFP. Health is Primary is the communications campaign to advocate for values of family medicine, demonstrate the benefits of primary care, and engage patients in our health care system. Its aim is to build a primary care system that reflects the values of family medicine, puts patients at the center of their care and improve health of all Americans.

Osteopathically yours,



Larry W. Anderson, DO, FACOFP *dist.*
2016 -2017 ACOFP President

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ORIGINAL RESEARCH

Addiction, Cessation, & Harm Reduction: Primary Care Provider Knowledge & Perceptions of Electronic Nicotine Delivery System

Brandon Talley, MPH, PhD Candidate, Shanta Dube, MPH, PhD, Rachna Chandora, MPH, Pratibha Nayak, MPH, PhD & Michael P. Eriksen, MSc, ScD

Georgia State University - School of Public Health, Atlanta, Georgia

Keywords:

Primary Health Care

Electronic Cigarettes

Harm Reduction

Tobacco Use

Cessation

Addiction Medicine

Disease Prevention & Wellness

Aim: This study aimed to understand the knowledge and perceptions related to electronic nicotine delivery systems (ENDS) among healthcare providers (HCP) practicing in the family and general practice settings.

Methods: HCPs that practice in the family and general practice settings were recruited for this study using a web-based panel of US physicians. The final non-probability sample totaled 80 participants practicing in the family or general settings within the US. Each participant completed an online survey that included items on demographics, tobacco use, and knowledge and perceptions toward ENDS. Close-ended questions were analyzed using frequencies and cross-tabulations. The open-ended question was analyzed using an open-coding process.

Results: In the close-ended questions, over 75% of respondents agreed or strongly agreed that ENDS are addictive, and 45% of respondents agreed or strongly agreed that ENDS are helpful for quitting traditional smoked cigarettes. Over 33% of participants felt that ENDS were not only addictive but also useful for quitting traditional smoked cigarettes. Of those participants that responded to the open-ended question, nearly 25% believed electronic nicotine delivery systems were potentially useful as a cessation tool.

Conclusions: The finding that over one-third of participants perceived ENDS to be useful for cessation despite the product's addictiveness has meaningful implications for the provision of tobacco cessation support. Currently, the harms and benefits of ENDS use are not well understood. By offering ENDS as a cessation tool or harm reduction alternative to traditional tobacco products, HCPs may be subjecting patients to unknown harms from ENDS.

INTRODUCTION

Tobacco use is the leading cause of preventable death globally, killing approximately six million people each year worldwide.¹ In the United States (US) between 2005 and 2009, there were 480,000 annual premature smoking-attributable deaths.² Evidence-based tobacco control efforts coupled with an effective regulatory framework can prevent and reduce tobacco use as well as its associated morbidity and mortality. However, in recent years, efforts to reduce tobacco use have been complicated by the global emergence of alternative and frequently unregulated tobacco products such as electronic nicotine delivery systems (ENDS).

Introduced to US markets less than a decade ago, ENDS include a number of products such as electronic cigarettes (e-cigarettes) that aerosolize nicotine for user inhalation and they often, but not always, resemble traditional cigarettes. Emerging ENDS products are also available in an assortment of configurations, flavors, and nicotine concentrations. In the US, e-cigarette use tripled from 4.5 percent to 13.4 percent and 1.1 percent and 3.9 percent among middle- and high-school students, respectively, between 2013 and 2014.³ Between 2010 and 2013, e-cigarette use more than tripled from 9.8 percent to 36.5 percent among adult smokers.⁴ Recent research shows that youth and adults that never used conventional cigarettes have increasing prevalence of ENDS use, and some adults that were former smokers have begun using ENDS.^{5,6} The observed trends demonstrate a rapid increase of e-cigarette use among youth and adults. Couple this trend with the current regulatory gaps and this could translate into increases in US tobacco use.

CORRESPONDENCE:

Brandon Talley, MPH, PhD Candidate | mtalley1@student.gsu.edu

While the proliferation of ENDS may increase tobacco use, there have been increasing calls for more research on the potential value of the products as a tool for treating tobacco dependence or reducing harm among inveterate smokers. To complicate the issue further, the US Food and Drug Administration, which has authority to regulate ENDS, recently extended its regulatory authority to the manufacture, import, packaging, labeling, advertising, promotion, sale, and distribution of such products; however, rules clarifying ENDS marked for therapeutic purposes such as smoking cessation have only been proposed.⁷ The absence of guidance on the therapeutic use of ENDS fosters confusion not only among users looking to quit cigarette smoking but also in clinical practice settings where tobacco cessation support is offered.

Healthcare providers (HCP) are instrumental in guiding patients through tobacco cessation; however, only a limited number of studies have sought to improve the understanding of HCP knowledge and perception of ENDS, particularly as it relates to the provision of cessation services and addictiveness. These studies focused on single states within the US or included only close-ended questions.⁸⁻¹¹ The purpose of this pilot study is to assess knowledge, attitudes and perceptions about ENDS specifically among sampled family/general practice providers, which accounted for over 40 percent of practicing primary care physicians in the US.¹² Our pilot study is distinct because it included the US rather than specific states and centered on primary care providers, which the World Health Organization (WHO) considers as key to the provision of tobacco dependence treatment.^{13,14}

METHODS

Recruitment & Sample

Using a proprietary, web-based panel of targeted HCPs in the US from the Toluna Group, HCPs in the family/general practice setting were invited to participate in the study via email invitations. The study used a non-proportional quota sampling technique. 181 HCPs were invited to participate. Screening question about the HCP's type, gender, and geographic area of practice were asked to determine eligibility for study participation. Only those HCPs that indicated they provide services in a family or general practice setting were eligible to participate in the study. Regional quotas for participants were set to improve geographic diversity (Midwest, Northeast, South, and West) of the respondents; however, the sample is neither regionally nor nationally representative. As this was a pilot study, the minimum number of sampled units was n=80 with approximately equal proportion of women and men. The response rate was approximately 44 percent. The final non-probability sample consisted of physicians, nurses, physician's assistants, nurse practitioners, and other practitioners that provide services in general or family practices in the US. The anonymous surveys, which took approximately 10 minutes to complete for each respondent, were administered in August 2015.

Measures

The questionnaire contained 22 questions pertaining to demographic characteristics; healthcare specialty and occupation; number of hours worked and patients seen per week; tobacco use; knowledge and perceptions towards ENDS; and understanding of state and federal regulations of ENDS product. This study exam-

ined variables on demographic characteristics; tobacco use; and knowledge and perceptions towards ENDS.

Demographic Variables

The proprietary, web-based panel asked respondents their age, sex, race, ethnicity, and geographic location.

Tobacco Use

Ever, current, and daily tobacco use were assessed for all study participants. To promote harmonization with other tobacco surveillance activities, these items were aligned with the US National Adult Tobacco Survey and Global Adult Tobacco Survey measures on tobacco use.^{15,16} Ever tobacco use was measured by asking participants, "have you used tobacco at least 100 times in your entire life?" with response options of Yes, No, Prefer Not to Answer, and Don't Know. Current and daily tobacco use was measured by asking participants, "In the past 30 days, did you use any tobacco product on a Daily Basis, Less than Daily, or Not at All? Tobacco products might include but are not limited to cigarettes, cigars, chewing tobacco, snuff, or e-cigarettes." Response options for the current and daily tobacco use item included Daily, Less than Daily, Not at All, Refused, and Don't Know.

Knowledge & Perceptions toward ENDS

Knowledge and perceptions towards ENDS were assessed for all study participants. Knowledge and perception on the use of ENDS as a cessation tool was measured by asking participants, "In your opinion, electronic nicotine delivery systems are helpful for quitting traditional smoked cigarettes" with response options of Strongly Agree, Agree, Neither Agree nor Disagree, Disagree, Strongly Disagree, Prefer Not to Answer, and Don't Know. Knowledge and perception of ENDS addictiveness was assessed by asking participants, "in your opinion, electronic nicotine delivery systems are addictive" with Strongly Agree, Agree, Neither Agree nor Disagree, Disagree, Strongly Disagree, Prefer Not to Answer, and Don't Know.

In addition to the close-ended questions, all respondents were provided an opportunity to respond to the following free-response, open-ended question: "Is there anything else you would like to share regarding the use of electronic nicotine delivery systems among patients?" Response options included 1=Free Response and 997=Prefer Not to Answer. The open-ended question was considered an essential component of providing more robust data on the target population for several reasons: 1) it enabled respondents to elaborate on issues the researchers may not have considered when selecting close-ended measures for the study; 2) rapidly evolving tobacco product diversity and tobacco use profiles in the US could render extant close-ended measures on ENDS unreliable or invalid; and 3) limited ENDS-related research in the HCP population translates into an opportunity to develop new hypotheses and theories surrounding this populations' knowledge and perception toward these products.

Data Analysis

Data analyses were conducted using SAS 9.4 (SAS Institute Inc.; Cary, NC). Frequencies and other descriptive statistics for demographic variables were first examined. A cross-tabulation of the

variables assessing the knowledge and perception of ENDS usefulness as a cessation tool and ENDS addictiveness was then generated. Due to sample sizes less than five in several cells, a Fisher's exact test was performed on the cross-tabulated variables to assess independence of the two knowledge and perception variables of interest.

The open-ended question/item requesting additional information on ENDS use among patients was analyzed through a thematic analysis. Three investigators (BT, PN and RC) – based on review of the responses to the open-ended question – independently developed a master code list of all common themes. All responses were then independently coded by the investigators (BT and RC) using the master code list. Consistency across the raters was assessed, and inter-rater reliability Cohen's kappa coefficient was 82% indicating high agreement. Discrepancies were resolved through co-author consensus.

RESULTS

Demographics

For the n=80 participants, the mean age was 45.6 years (SD: 12.1), and the sample was distributed almost equally by gender. Four geographic regions were covered by the study: Midwest, Northeast, South, and West. The lowest and highest number of participants resided and practiced in the Northeast (n=13) and the South (n=28), respectively. Inclusion criteria restricted HCPs to the family/general practice setting, and participants from that setting included a variety of physician and non-physician practitioners. A majority of participants (n=48) were physicians. All participants were asked to provide information on ethnicity and race. For participants that responded to the ethnicity item, most were White (n=27) or Asian (n=8); however, a majority of respondents (n=44) chose not to respond to this item. Similarly, a majority of participants (n=77) chose not to respond to the race item. A majority of respondents (n=66) never used tobacco. Further details regarding demographic variables of respondents are presented in Table 1.

Knowledge & Perceptions of Electronic Nicotine Delivery Systems.

For the closed-ended question, over 75% of respondents (n=62) agreed or strongly agreed that ENDS are addictive, and 45% of respondents (n=36) agreed or strongly agreed that ENDS are helpful for quitting traditional smoked cigarettes (Table 2). Interestingly, over one-third of participants (n=27) felt that ENDS were not only addictive but also useful for quitting traditional smoked cigarettes. The relationship between the addictiveness and helpful for quitting variables was not statistically significant based on a Fisher's exact test (p=.3945).

For the open-ended question, a majority of participants (n=50) provided written responses (Table 3, page 14). Responses could typically be classified into one of several overarching themes: beliefs about ENDS as a cessation device, harm perceptions, the need for additional information, and general concerns about the products. In addition to the overarching themes, responses were further classified into 12 specific sub-themes. Of those 12 sub-themes, nearly one-fourth of respondents (n=12) indicated they

believe ENDS are potentially useful as a cessation tool. The second highest sub-theme identified was the belief that e-cigarettes are harmful (n=8). Of the overarching themes, the need for more information had the most consistent content/responses among sub-themes, and more than one-fourth of respondents (n=14) felt more information or research on ENDS is needed.

DISCUSSION

The increase in ENDS use in the US has troubling implications for public health and tobacco control. Because ENDS are still relatively new to the US market, it remains unclear whether these devices will be useful for tobacco cessation, lead to increases in tobacco use overall, or provide a gateway for non-users to initiate use of traditional tobacco products such as cigarettes. Recent research has shown odds of quitting cigarettes were 28 percent lower when comparing e-cigarette users to non-users.¹⁷ Conversely, other research has demonstrated that e-cigarette use alone may support tobacco cessation.¹⁸ Beyond the mixed signals from research, the absence of regulations around the therapeutic use of ENDS adds complexity to the provision of cessation support to patients. How do primary care practitioners navigate the increasingly complex nexus of ENDS research, regulatory uncertainty, and patient demand for ENDS?

Our pilot study demonstrated navigating that growing complexity might be difficult. With over one-third of respondents agreeing or strongly agreeing that ENDS are potentially helpful for quitting smoking despite being addictive, some providers seemed poised to ignore the uncertain harms of ENDS use. Although the reasons for this are unknown, themes identified as part of our open-ended assessment provide a possible explanation and avenues for further investigation. For example, many of the open-ended responses noted that ENDS are potentially useful as a cessation tool and may be a less harmful substitute for other tobacco products. Collectively, these themes coalesce around a common thread: harm reduction. The concept of harm reduction maintains there is a continuum of risks from tobacco products, and “a product is considered harm-reducing if it lowers total tobacco-related mortality and morbidity even though use of that product may involve continued exposure to tobacco-related toxicants.”¹⁹

The harm reduction context raises an important question about respondents that agreed or strongly agreed ENDS are potentially helpful despite the addictiveness: do these HCPs believe they are protecting the health of tobacco using patients by recommending ENDS as a safer alternative? Our study did not specifically address this issue; however, efforts to normalize ENDS use could impact HCP perceptions about the harms and benefits of the product. Current marketing by companies like British American Tobacco (BAT) suggests the tobacco industry is making efforts to normalize ENDS as a safer, harm reduction tool. In an online video posted to the harm reduction page of BAT's website, the announcer remarks:

“Despite the well-known health risks and pressure to quit, millions of adults choose to smoke. It's time to look at alternatives. A new, more realistic and progressive route is needed. One where adult smokers looking to reduce the amount they smoke or quit, are given a choice of less risky products such as e-cigarettes.”²⁰

TABLE 1:

Unweighted sample characteristics of family/general practice provider participants

Characteristic		All Participants, No. (%) or Mean ± SD	Never Tobacco Use, No. (%) or Mean ± SD	Ever Tobacco User, No. (%) or Mean ± SD
Total		80 (100)	66 (82.5)	14 (17.5)
Mean Age ± SD		45.6 ± 12.1	45.6 ± 12.2	45.4 ± 11.9
Gender	Male	41 (51.2)	31 (47.0)	10 (71.4)
	Female	39 (49.8)	35 (53.0)	4 (28.6)
Region	Midwest	21 (26.3)	17 (25.8)	4 (28.6)
	Northeast	13 (16.2)	9 (13.6)	4 (28.6)
	South	28 (35.0)	25 (37.8)	3 (21.4)
	West	18 (22.5)	15 (22.7)	3 (21.4)
Healthcare Provider Type	Physician	48 (60.0)	40 (60.6)	8 (57.1)
	Nurse	8 (10.0)	7 (10.6)	1 (7.1)
	Physician's Assistant	6 (7.5)	4 (6.1)	2 (14.3)
	Nurse Practitioner	16 (20.0)	15 (22.7)	1 (7.1)
	Other	2 (2.5)	0 (0.0)	2 (14.3)

TABLE 2:

Relationship between healthcare providers' opinions of ENDS usefulness for quitting traditional cigarettes and ENDS addictiveness

In your opinion, electronic nicotine delivery systems are helpful for quitting traditional smoked cigarettes.	In your opinion, electronic nicotine delivery systems are addictive, No. (%)						
	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree	Don't Know	Total
Strongly Agree	3 (3.75)	2 (2.50)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	5 (6.25)
Agree	3 (3.75)	19 (23.75)	6 (7.50)	0 (0.0)	0 (0.0)	3 (3.75)	31(38.75)
Neither Agree nor Disagree	5 (6.25)	10 (12.50)	2 (2.50)	0 (0.0)	0 (0.0)	1 (1.25)	18 (22.50)
Disagree	6 (7.50)	7 (8.75)	2 (2.50)	0 (0.0)	0 (0.0)	1 (1.25)	16 (20.00)
Strongly Disagree	2 (2.50)	2 (2.50)	1 (1.25)	0 (0.0)	1 (1.25)	0 (0.0)	6 (7.50)
Don't Know	1 (1.25)	2 (2.50)	0 (0.0)	0 (0.0)	0 (0.0)	1 (1.25)	4 (5.00)
Total	20 (25.00)	42 (52.5)	11 (13.75)	0 (0.0)	1 (1.25)	6 (7.5)	80 (100.0)

Note: Fisher's exact test indicated the two variables are independent (p = .3945)

TABLE 3:

Feedback from the participant regarding the use of electronic nicotine delivery systems among patients (n=50)

Theme	Example	n ^a	
Noticed an increase in e-cigarette use	"I have seen a dramatic increase in the amount of e-cig usage."	2	
Cessation Device	Potentially useful as a cessation tool	"They can be a useful tool in cessation programs for heavily addicted patients."	12
	E-cigarettes provide a substitute for other tobacco products	"I think it trades one vice for another..." or "Seems they are trading one type of nicotine addiction for another."	6
	Not useful as a cessation tool	"I believe e-cigarettes are useful in treating habit of holding something, social habit such as coffee with cigarette in the morning, but are not useful to treat real nicotine dependency."	4
	Patients have switched to e-cigarettes	"The number of traditional smokers in one's practice as a percentage has switched to e cigarettes."	1
Harm Perception	E-cigarettes are harmful	"Not safe, just as cigarettes aren't safe either. Both can lead to COPD and cancer."	8
	Any nicotine product is addictive	"I often think patient use this as a means to just place there nicotine addiction from cigarettes to the ecig."	6
	Patients perceive e-cigarettes to be less harmful than other tobacco products	"Patient's perception are that they are not harmful at all. Some patients even answer "no" when asked if they are a smoker even though they use e-cigs"	2
Information Needs	More information/research about e-cigarettes is needed	"I am concerned we will find long term consequences to their use we don't know about yet."	7
	Level of harm when compared to other tobacco products is not well understood	"Not sure if they are as harmful as cigarettes yet."	7
Concern	E-cigarettes are unregulated or need regulations	"Unregulated, dangerous, money-driven."	4
	E-cigarettes appeal to youth/adolescents	"These things seems to really entice teens however."	3

n^a = number of participants who identified this theme

The dissemination of industry-sponsored harm reduction messages that label ENDS as a less risky product than cigarettes could confuse HCPs and patients alike, particularly when these messages are viewed against the voluntary warning labels that appear on some ENDS:

"This product is not a smoking cessation product and has not been tested as such. This product is intended for use by persons of legal age or older...nicotine can increase your heart rate and blood pressure and cause dizziness...inhalation of this product may aggravate existing respiratory conditions. Ingestion of the non-vaporized concentrated ingredients in the cartridges can be poisonous."²¹

When mixed industry messages are considered in the context of increasing spending on traditional promotions such as advertisements,²² the prospect for confusion surrounding ENDS safety is greatly magnified.

Beyond messaging from the tobacco industry, patient knowledge toward and use of ENDS could muddle the provision of tobacco dependence treatment by HCPs. In the US, more than 65% of respondents in a large, longitudinal study of smokers reported ENDS were less harmful than traditional cigarettes.²³ The study also found that ENDS users smoked fewer cigarettes per day between the two most recent waves of the study.²³ While that decline may indicate harm reduction among certain tobacco users, other research demonstrated a

majority of adult smokers not only used traditional cigarettes and ENDS jointly²⁴ but also rejected ENDS as a satisfying substitute that entirely replaces cigarettes.²⁵ This emerging dual use has ramifications as it could deter tobacco cessation by creating multiple channels for sustaining nicotine dependence. Such findings, which provide limited insight into the efficacy of ENDS as a cessation or harm reduction tool, offer scant guidance to providers that need to understand the harms and benefits of ENDS use for patients.

LIMITATIONS

This study has several limitations. Although the non-probability sample covered multiple regions and the entire US, the sample size was small, non-random, and cross-sectional. As a result, the findings may not be generalizable beyond the study population. In particular, patterns of non-response for the race and ethnicity variables could meaningfully impact generalizability and the interpretation of the findings, limiting representation of ethnic diversity. In addition to limitations related to the study population and sample, the survey mode restricted further probing of the open-ended question. This prevented the researchers from exploring various themes and findings in detail. Lastly, ENDS use and the knowledge surrounding it have evolved rapidly in the last several years. This rapid evolution of trends and information means findings from ENDS research is particularly time-bound.

CONCLUSION

HCPs in the family/general practice setting are often responsible for guiding patients through the tobacco dependence treatment process. This process has changed dramatically over the last decade with the introduction of ENDS to the US market. Moreover, in the absence of regulations classifying ENDS as a cessation product, tobacco product diversity will continue to increase and transform the tobacco use profile of many patients. These rapid changes generate many unanswered questions about the harms and benefits of ENDS. However, these changes also generate questions about the usefulness of ENDS as a means of reducing tobacco-related morbidity and mortality. HCPs, sitting on the front lines of tobacco dependence treatment in the absence of regulatory guidance for ENDS, must often weigh the harms and benefits to patients without the benefit of full information. Our study found that HCPs want more and better information to help inform their approach to ENDS in the patient care environment. Beyond the implications for healthcare practice, this formative research improves understanding of ENDS knowledge and perceptions among HCPs in the US and serves as a foundation for future inquiry on this issue.

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ETHICAL APPROVAL

This study was approved by the Georgia State University Institutional Review Board (IRB) as Exempt Protocol Category 2 (IRB Number: H16010, Reference Number: 334592).

CONFLICTS OF INTEREST

The authors have no conflicts to declare.

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Physician's Perspective & Influence on Patient Education Resources in the Waiting Room

Philip B. Collins, DO,¹ Thomas Dinzeo, PhD² & Joshua S. Coren, DO, MBA, FACOFP¹

¹Rowan University School of Osteopathic Medicine, Stratford, NJ

²Rowan University, Glassboro, New Jersey

Keywords:

Waiting Room

Patient Education

Disease Prevention
& Wellness

Context: This study was conducted to gain a better understanding of physicians' roles and perspectives of education in the waiting room.

Objective: To date little empirical data exists assessing physician preferences on use of education resources in the waiting room. This study is designed to examine physicians' preferences for use, their role in selection, their perception of patients' satisfaction with resources, and differences among patient population.

Methods: This study used an anonymous online survey developed by the researchers and provided to physicians through the ACOFP mailing list. Using a 5-point Likert scale, physicians' opinions of patient education materials in the waiting room and perceptions of patient satisfaction were assessed. Subjects were also asked what type of education materials they use in their waiting rooms.

Results: In total, 50 surveys were collected. A bivariate Pearson correlation was used to analyze the data obtained. Early results indicate physicians with the ability to select the materials for the waiting room have greater satisfaction with the waiting room ($r=.278, p=.05$), spend more time in the waiting room ($r=.50, p<.001$) and report that more patients ask about educational items that are presented in the waiting room ($r=.38, p=.006$). It was also found that male physicians were more likely to endorse a "relaxed" waiting room ($F(2, 48)=.4223, p=.045$) and endorsed a greater ability to select the materials in the waiting room when compared to females ($F(2, 48)=6.960, p=.011$). Also of note, these materials are viewed as less beneficial in practices with higher proportions of Hispanic patients ($r=-.51, p<.001$), younger children/adults (age 0-21) ($r=-.57, p<.001$), and practices that accept higher rates of Medicare ($r=-.34, p=.021$).

Conclusion: These data have the potential to inform medical organizations both of the desired role physicians wish to play in educating their patients and which materials are preferred. However, these preliminary results warrant further exploration of physicians' preferences based on practice setting and patient populations.

INTRODUCTION

The waiting room of a physician's office has, particularly in recent years, been utilized as an occasion to educate patients. Modalities include posters, signs, handouts, television programming, and advanced technology (e.g. tablets, apps). Previous studies have investigated the effectiveness of educational materials in the waiting room^{1,2} as well as patients' perspectives of their use. While some acknowledge it is an opportunity for education, others prefer a relaxing environment intended to decrease stress and boredom.³ Mitigating anxiety in the waiting room has been the focus of prior investigations,⁴ and results suggest a positive correlation

between an enjoyable experience in the waiting room and overall satisfaction with their healthcare provider.² Other investigations have examined the effectiveness of targeted materials in medication compliance⁵ and knowledge of medical conditions.^{6,7,8} While these findings are beneficial to understanding the use of educational materials, information about which materials physicians feel are most effective for their patients while in the waiting room is scarcely available.⁹ Further, much of this prior work has been conducted in the hospital setting¹⁰ rather than primary care offices. To date, little empirical data has been gathered to assess the degree of influence physicians with varying statuses (e.g. practice owners v. non-owners) have on the educational materials selected for the waiting room. To this end, the authors of this study investigated primary care physicians' role and their perspectives of the value of education in the waiting room.

CORRESPONDENCE:

Philip B. Collins, DO | collinsp@rowan.edu

METHODS

A 20-item survey was provided to physicians through ACOFP mailing list as an embedded hyperlink that redirected them to a secure Qualtrics questionnaire. All responses were anonymous. The survey was developed by the authors with items 1-12 ascertaining physician characteristics (e.g., age, sex, number of years since residency), the nature of the practice environment (hospital owned, academic, private, etc.), the location of practice (urban, suburban, rural), the types of materials provided in the waiting room, and basic information about client-base (percentage served in specified age, ethnicity, & insurance categories). Items 13-20 required physicians to rate their agreement on a 5-point Likert scale (strongly disagree to strongly agree) with statements reflecting attitudes towards the function of waiting rooms (i.e., relaxation, educational), perceived client response to the waiting room environment, and perceived/desired ability to influence the types of materials in the waiting room. This questionnaire will be made available to researchers upon request to the first author.

RESULTS

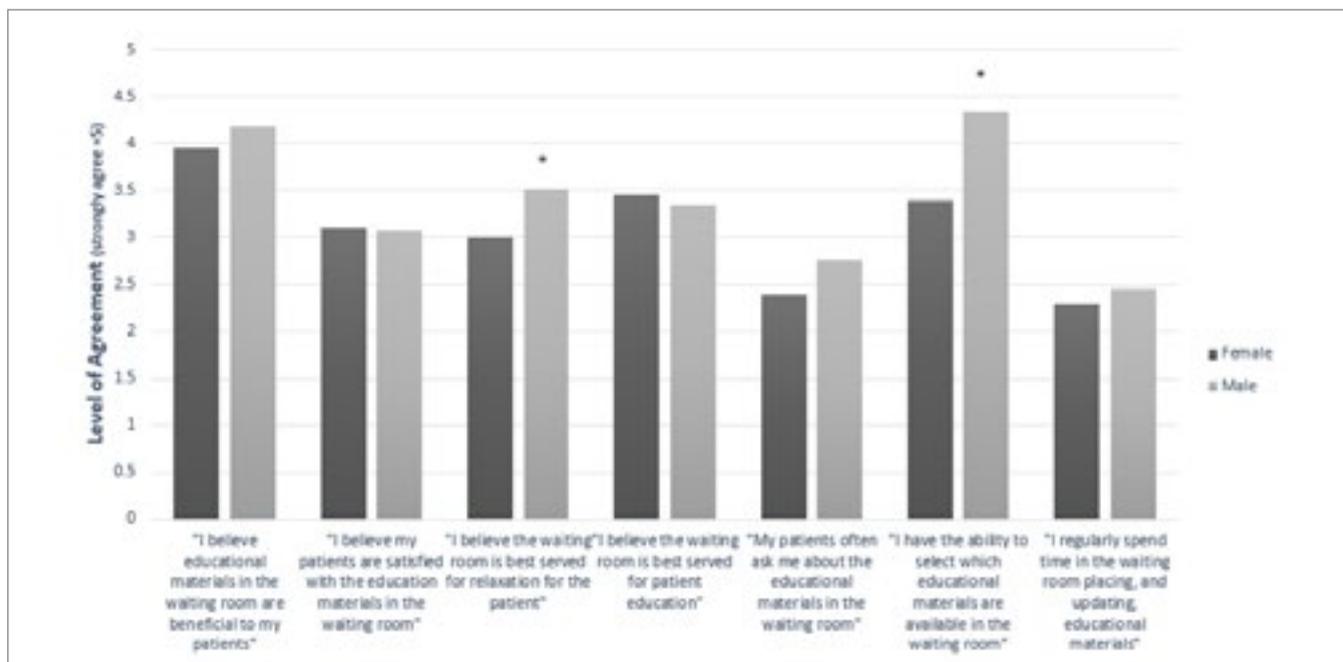
In total, 50 surveys were collected. Of the respondents, 29 were male and 20 female (one did not indicate sex), there was a mean age of 49 (SD 10) with 19 years (SD 11) since residency. Bivariate Pearson's correlations suggest that a physician's attitude about the function of the waiting room (i.e., education vs. relaxation) was strongly associated with the perceived benefits of these materials ($r=.41, p=.003$; vs negative correlation of $r=-.40, p=.004$). In addition, physicians that believe the waiting room is best suited for patient education vs. relaxation reported that their patients were more likely to enquire about educational items in the waiting room

environment ($r=.32, p=.023$ vs. $r=.24, ns$). Clinicians that have the ability to select the materials for the waiting room reported that their patients were more satisfied with the educational materials provided in the waiting room ($r=.278, p=.05$) and report that more patients ask about educational items in the waiting room ($r=.38, p=.006$). Years since residency and physician's age did not correlate with any of the variables in the questionnaire. A composite score was created for the types of materials included in waiting rooms (i.e., pamphlets/handouts, posters, health magazines, television with medical programing, materials provided by pharmaceutical reps). One point was assigned for each type endorsed. Greater variability of educational materials was associated with perceived patient satisfaction ($r=.325, p=.024$) and an increased frequency of patients asking about those materials ($p=.399, r=.005$). Also of note, these materials are viewed as less beneficial in practices with higher proportions of Hispanic patients ($r=-.51, p<.001$), younger children/adults (age 0-21) ($r=-.57, p<.001$), and practices that accept higher rates of Medicare ($r=-.34, p=.021$).

One-way ANOVAs were used to examine group differences. Results examining physicians' gender (see Figure 1) suggested that male physicians were more likely to endorse a "relaxed" waiting room ($F(2, 48)=.4223, p=.045$). Male physicians also endorsed a greater ability to select the materials in the waiting room when compared to females ($F(2, 48)=6.960, p=.011$). No differences were found in the types of educational materials provided (etc.), or satisfaction with the waiting room, across clinic setting (i.e., suburban, urban, rural). Not surprisingly, physicians that owned stake in their practice were more likely to have the ability to select materials for the waiting room ($F(2, 48)=10.794, p=.002$) and spent more time in the waiting room ($F(2, 48)=4.650, p=.036$) than non-owners.

FIGURE 1:

Comparison of Physician Gender & Responses Regarding Waiting Room Materials.
*ANOVA results, $p<0.05$



DISCUSSION/CONCLUSIONS

These data have the potential to inform medical organizations both of the desired role physicians wish to play in educating their patients and which materials are preferred. In a recent study, respondents were often unfamiliar with the waiting room environments their own patients spend time in.¹¹ Our findings indicate that physicians with the ability to choose education materials in the waiting room perceived better patient satisfaction with the waiting room than physicians without that ability. These same physicians were also found to spend more time in the waiting room themselves and were more likely to have patients ask about the education materials. It was also noted that as the variety of materials increased, so too did physicians' perceived patient satisfaction and questions asked by patients. Physician gender was found to be an important variable in this study. Results indicate that while male physicians more often have the ability to choose education materials in the waiting room, male physicians also indicate a preference for the waiting room to be used for relaxation.

Interestingly, in practices with higher rates of Hispanic patients, pediatric/young adult patients, and Medicare patients, physicians' perceived value of education materials was less than practices with lower rates of these populations. Common barriers to improvement cited by providers included diverse language and literacy backgrounds in the patient population.¹¹ Our findings suggest this difference may be associated with language barriers, availability of multilingual and age appropriate education materials. In relation to Medicare patients, prior research has shown that with appropriate use, education in the waiting room can lead to better patient medication adherence and higher quality of life scores.¹² This is especially important with the development of Medicare Access & CHIP Reauthorization Act of 2016 (MACRA) to ensure patients receive enhanced resources directly from their providers to assist with chronic health conditions.

While these initial findings suggest education materials may be valuable to the waiting room experience and in physicians' interaction with patients, further exploration of these associations is necessary. This study is limited by small sample size and correlational design. An experimental design may be useful in correcting for any possible bias present among physicians' perceived value of education materials. Future studies should investigate how number of available materials and appropriateness of these items are associated with patient questions. These initial results suggest use of these resources may contribute to more conversations with physicians regarding overall health. Additionally, examination of patients' perception of the value of education materials is warranted. Some suggestions of improving the waiting room in a primary care setting include Waiting Room Managers, validated questionnaires, educational materials, and restructuring the waiting room.¹³ While more research is needed to better understand the value of education materials, the findings of this study suggest these resources may be beneficial in increasing physicians' interactions with the waiting room and improving patient experiences.

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REVIEW ARTICLE

Abnormal Loss of Weight

Raena Pettitt, DO, Sriharsha V. Kota, BS, OMS I & Matthew Hadfield, BS, OMS II

Liberty University College of Osteopathic Medicine, Lynchburg, Virginia

Keywords:

Abnormal Weight Loss

Disease Prevention
& Wellness

Abstract: Abnormal weight loss is a frequently occurring condition among adults and is linked to a host of adverse health outcomes, including higher mortality rates, and a number of progressive debilitating illnesses. While this condition commonly presents with a contributing disorder, many patients present with no immediately discernable medical reason to explain their abnormal weight loss. A variety of pharmacologic and nonpharmacologic measures can be undertaken to address the underlying weight loss and to improve nutritional status. Physicians should not assume that weight loss is a natural phenomenon until they have thoroughly reviewed and eliminated other social and pathologic causes.

INTRODUCTION

Abnormal weight loss is an unintentional drop in body weight over time. It occurs in 8% of all adult outpatients and is even more prevalent among elderly individuals, occurring in approximately 30% of all such individuals defined as individuals 65 and older.¹ As a risk factor in elderly patients, even slight weight loss is connected with higher morbidity and mortality rates. While voluntary weight loss among the general adult population is not generally considered problematic, even slight weight loss among elderly individuals is correlated with joint fractures and higher mortality rates.^{2,3} Thus, physicians should stress to their patients the medical benefits of maintaining a healthy body weight throughout adulthood and of taking early preventive measures through proper diet and exercise. Abnormal weight loss is also linked to a higher frequency of admission to institutions, to an elevated risk of in-hospital complications, to a deterioration in the ability to perform activities of daily living, to somatic dysfunction, and to an overall decrease in the quality of life.^{4,5,6} Certain individuals require heightened monitoring for abnormal weight loss, more specifically, those who: (a) are disabled; (b) have a co-existing medical illness; (c) have previously been admitted to an institution; (d) have a cognitive impairment; (e) are smokers, (f) have experienced the loss of a significant other; or (g) already have a low baseline body weight.^{7,8}

MAJOR ETIOLOGIES OF WEIGHT LOSS

Malignancy

When evaluating the potential causes of unintentional weight loss, the physician must consider the possibility of an underlying malignancy, especially if the presenting patient is elderly. A recent study ranked cancer as the most common cause of weight loss, with the

majority of malignancies found to be gastrointestinal in origin in patients who were 65 years or older. While various types of cancers often present with unexplained weight loss, the most likely etiologies are cancers of the lung, lymphoma, prostate, ovarian, and bladder.⁸ A history of tobacco use or smoking should prompt screening for lung cancer. The most common presenting symptoms of lung cancer, in addition to weight loss, include hemoptysis, loss of appetite, thoracic pain, fatigue, and coughing.⁹

Physical findings may include clubbing. In men, complaints of urinary changes, either in frequency or urgency, are strong indicators of prostate hypertrophy and potential malignancy, especially when accompanied by weight loss.¹⁰ In women, complaints of changes in menstrual cycles, abdominal pain, bloating or a feeling of fullness, should prompt the physician to include ovarian cancer in the differential diagnosis.¹¹ The most common indicator of bladder carcinoma is hematuria. However, any complaints about changes in urinary habits, such as urgency, frequency, nocturia, or dysuria, when accompanied by unexplained weight loss, should prompt a workup for a bladder malignancy.¹² Cachexia can be a prominent and isolated exam finding in certain cancers, such as pancreatic cancer. Cancer cachexia is a debilitating and progressive metabolic syndrome, which results from aberrant interactions between host and tumor cells and causes progressive skeletal muscle wasting, fatigue, and weight loss, among other disturbed physiological processes.¹³ The most common presenting symptom in carcinomas of the pancreas is unexplained weight loss, followed by vague epigastric pain and jaundice.¹⁴ If a patient presents with these symptoms, special efforts should be made to avoid a delay in diagnosis and treatment by including pancreatic cancer in the differential until it is ruled out from a clinical standpoint.

Diabetes Mellitus Type II

Diabetes is a state of elevated blood glucose levels from either insufficient insulin secretion, insulin action, or a combination of the two.¹⁵ When examining a patient who has recently experienced un-

CORRESPONDENCE:

Raena Pettitt, DO | rmpettitt@liberty.edu

explained weight loss, the physician should include diabetes mellitus at the top of the differential list until it is excluded based on the clinical workup. Typically, diabetes presents with polydipsia, polyuria, and weight loss.^{16,17} Patients who present with any of these symptoms, especially if they are overweight, should have fasting blood glucose testing performed.

Hyperthyroidism & Thyrotoxicosis

Overstimulation of the thyroid gland can be a significant cause of an unexplained drop in weight and may be attributed to multiple etiologies. The most common disease known to cause overstimulation of the thyroid gland is Grave’s Disease, an autoimmune condition in which thyroid-stimulating immunoglobulins cause the thyroid gland to produce excess thyroid hormone.¹⁸ Weight loss can be a presenting symptom and may be accompanied by heat intolerance, irritability, insomnia, excessive sweating, diarrhea, palpitations, muscular weakness and irregular menstrual cycles.¹⁹ In patients suspected of having Grave’s Disease, a thyroid-stimulating hormone level should be performed.

Age-Related Frailty

Aging is sometimes accompanied by a decline in body mass and weight loss, also referred to as sarcopenia, or the decrease in muscle mass with age.²⁰ Frailty is defined as a condition that has a risk of weakening in well-being and function among older adults. The process of muscle wasting in the elderly often has multiple etiologies and, although the process is not fully understood, the primary etiologies are inactivity and insufficient caloric intake. Sarcopenia is most prevalent in the elderly and affects 5 to 13% of persons aged 60-70 years old.²¹ Although muscle wasting in the geriatric population is to some extent normal, it may lead to frailty, the loss of ambulation, a significant increase in the risk of falling and, eventually, to increased mortality.²² Nutritional supplementation and exercise regimens can be prescribed, either separately or in tandem, to delay or prevent the onset of sarcopenia in elderly patients.²³

Systemic Lupus Erythematosus

The clinical presentation of Systemic Lupus Erythematosus (SLE) is often complicated, involving multi-organ systems, primarily the musculoskeletal, renal, and integumentary systems.²⁴ SLE can also cause malabsorption issues which may manifest themselves in weight loss.^{25,26} Other common presenting symptoms of SLE include fever and fatigue. SLE is more common in women than men, with women of childbearing age being the most at risk for developing the disease.²⁷ The exact cause of SLE remains unclear, but it appears that hormonal, genetic, and environmental factors may contribute to the development of the disease.²⁸

Psychological Considerations in Weight Loss

Anorexia nervosa is a condition characterized by excessive weight loss from self-starvation and extreme exercise strategies.²⁹ Anorexia nervosa is most common in young females, who account for 90-95% of patients diagnosed with the condition.³⁰ This condition can be life-threatening if left untreated. However, specific treatment guidelines are beyond the scope of this paper.

Depression in the community dwelling geriatric population can be as high as 15%.³¹ Sudden weight loss in the elderly population can

be a sign of depression, dementia, or delirium.^{32,33} Weight loss accompanied by changes in mental status and mood should warrant a full neurological and psychological evaluation.

Medications

A table of medications linked to abnormal weight loss can be seen in Table 1.^{34,35}

Other Etiologies

There are also less common etiologies of abnormal weight loss, such as adrenal insufficiency, infectious diseases, heart failure, and chronic vigorous exercise. There are many disease states that can cause unintended weight loss, and this list is certainly not exhaustive. All cases of unintended weight loss should be worked up until the cause has been determined, even after all the causes mentioned in this paper have been ruled out.

DIAGNOSIS & TREATMENT OF WEIGHT LOSS

It is important that physicians learn to identify abnormal weight loss in the clinical context. Many patients who have unintentionally lost more than 5-10% of their body weight over a 6-month period may not notice the weight loss or may erroneously attribute the weight loss to minor changes in their diet or an increase in their physical activity.³⁶ Conditions such as anorexia nervosa, bulimia or other abnormal eating patterns coupled with low self-esteem may also cause some patients to minimize the significance of their weight loss. These conditions may cause patients to consider weight loss the natural and intended result of their premeditated efforts. Interestingly, a majority of individuals who have noticed a decrease in their weight have no medically recorded proof of their weight loss.³⁷ For those individuals, a physician may become aware

TABLE 1:

Drug / Drug Class	Mechanism of inducing weight loss
Allopurinol, ACE inhibitors, Calcium Channel Blockers, L-DOPA, Propranolol, Spironolactone	Altered taste or smell
Anticholinergics, Loop Diuretics, Clonidine	Dry mouth
Anticonvulsants, Appetite suppressants, Wellbutrin, L-DOPA, Metformin, Opioids, Theophylline	Anorexia
Bisphosphonates, Doxycycline, Iron Supplements, NSAIDS, Potassium Supplements	Dysphagia
Amantadine, Digoxin, Dopamine Agonists, Metformin, SSRIs, Tricyclic Antidepressants	Induced nausea and vomiting

of the weight loss by observing changes in clothing size, hearing comments from close friends or relatives, or obtaining weight loss estimates from the patient. By taking a comprehensive patient history, a physician may uncover the cause of the weight loss and determine whether the cause is abnormal in nature or due to some other condition.

Developing a thorough history also allows a physician to identify certain symptoms that warrant further discussion with the patient, including changes in urination or defecation or other changes that may suggest issues with one or more specific organ systems. Such changes are frequently found in almost half of all patients who present with abnormal weight loss.^{38,39,40} While all aging adults should have mental health screenings, it becomes even more important for those patients who present with unintentional or irregular weight loss.⁴¹ Certain outstanding skin conditions, such as palpable masses and lymphadenopathy, also require further investigations, to check for malignancies and other skin conditions. At present, however, there is insufficient research regarding the indicative value of physical examinations with respect to uncovering the causes of weight loss. The most useful non-invasive methods that are currently available to help identify these causes include: measuring serum alkaline phosphatase, bilirubin, lactate dehydrogenase, and performing imaging studies, such as chest radiography and abdominal ultrasound.^{42,43,44,45,46} Certain symptoms which warrant specific investigation into GI tract issues through endoscopy and ultrasound include increased enzyme levels and iron-deficiency anemia. A list of useful diagnostic tests can be found in Table 2.^{47,48,49} In cases where the patient presents with no discernable evidence of an underlying disorder, the physician should begin by evaluating whether the weight loss is caused by undernourishment from insufficient food consumption or energy intake, otherwise known as primary malnutrition. Aging and frail adults are particularly prone to undernourishment, primarily because they tend to consume an insufficient volume of food as opposed to food with low nutritional value (quality of protein, carbohydrate, fat content etc.). Encouraging a diet filled with healthy, nutritious foods should be the primary strategy for combating abnormal weight loss on a long-term basis. Explaining the health benefits of an adequate nutrition regimen to patients is important to encourage them to consume a sufficient volume of food. Unfortunately, a patient's lifestyle and other factors, including poverty, depressed mental health, poor dental care, loss of vision or hearing, and stress, sometimes impede efforts to quickly resolve weight loss issues.

To ensure adequate management and guide the patient on a safe regimen for correcting abnormal weight loss, the physician may consider involving a nutritionist, or mental health professional to contribute to the plan of action, particularly when no clinical explanation for the weight loss has been determined.⁵⁰ In addition, involving a registered dietician may be a useful adjunct. Where appropriate, exercise may be prescribed to stimulate both a larger appetite and an increase in lean muscle mass.⁵¹ Exercises should include strength-resistance training, aerobic-endurance exercises, or both, to achieve desired effects. Encouraging patients to consume supplements, such as mass-gaining shakes, can improve the likelihood of achieving desired results between office visits. Supplements may be taken between meals to avoid disrupting normal hunger cues. Care should be taken to introduce any changes gradually so that patients are not overwhelmed to the point where they

TABLE 2:

Diagnostic Test	Examples
Labs	TSH, ANA, ESR, LDH, Hba1c, fasting glucose, CBC, PSA, Cr, Alkaline Phosphatase, bilirubin
Imaging	Chest X-ray, mammogram, abdominal ultrasound
Procedures	PAP smear, DRE
Invasive Techniques	Colonoscopy, CT scan of abdomen, pelvis, chest with contrast

may abandon all efforts. The use of supplements does raise some questions about the short-term and long term benefits of weight improvement. Weight loss management, over the short-term, has been documented as effective in combatting abnormal weight loss. However, the benefits of weight loss management, over the long-term, have not been conclusively proven.⁵² For example, one review has shown a decrease in mortality rates among frail, older patients who consume protein supplements, regardless of whether or not they experienced abnormal weight loss.⁵³ While there are medications that stimulate appetite minimally in the short-term, they have proven to be inconclusive and perhaps detrimental in the long-term and lie beyond the scope of practice for this articles.¹ Lastly, it can be reasonable to assume that patients who consume too few calories and who experience unintentional weight loss may also be experience vitamin and mineral deficiencies. In these cases, the clinician should encourage foods that are nutrient-dense in addition to vitamin or mineral supplements.⁵² The patients should be advised to eat certain foods known for being good sources of complex carbohydrates, lean protein, and healthy fats/lipids, as well as for being good sources of essential vitamins and minerals.⁵⁴

CONCLUSION

Presenting as an unintentional drop in body weight over a 6-month period, abnormal weight loss is a health condition that may be a symptom of various underlying causes. These causes can range anywhere from side effects of prescription medications to autoimmune diseases, such as Systemic Lupus Erythematosus. In addition, abnormal weight loss can be a symptom of malignancies and metabolic syndromes, such as Diabetes Mellitus Type II and hyperthyroidism. To properly diagnose the cause of abnormal weight loss, physicians should consider a myriad of possibilities, depending on the patient's presenting symptoms, the results of clinical testing, and the patient's medical and social history. Unfortunately, there is no one etiology that can be used to diagnose the causes of abnormal weight loss in all patients and, once diagnosed, the particular course of action adopted should be adapted to the patient. At a minimum, it is recommended that the physician begin with a thorough physical exam, searching for signs of malignancy, hyperthyroidism, or mental health issues. In addition to a thorough history

and physical exam, the physician may also consider performing appropriate diagnostic tests and obtaining blood work as part of his or her investigation into the causes of abnormal weight loss. Once the patient is adequately screened for pathophysiological causes of abnormal weight loss, the clinician can adopt different strategies, such as increasing the frequency and amounts of healthy, nutritious food to correct the weight loss and put the patient back on track for an effective recovery. If these interventions prove unsuccessful, patients can be prescribed exercise therapy to help increase their basal metabolic rate and to improve hunger cues, thereby encouraging the patients to eat more frequent meals of larger volume. Lastly, malnutrition may be addressed by including foods and supplements high in vitamins and minerals.

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Erectile Dysfunction for the Family Physician

Roland W. Newman, II, DO,¹ John Murphy, DO² & Rebecca Pietrofesa, DO²

¹Chairman, Department of Family Medicine and Faculty - Family Medicine Residency Program Penn State Health St. Joseph, Reading, PA

²Penn State Health St. Joseph - Family Medicine Residency Program, Reading, PA

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Abstract: Erectile dysfunction (ED) is a relatively important issue in men's health that warrants further discussion and consideration amongst primary care physicians. While it was originally believed that the underlying mechanism of ED was more psychogenic in nature, over the last 40 years such thinking has been abandoned in favor of investigating underlying organic causes as the primary contributor. The causes of ED are varied and it is clear that there are a multitude of medical comorbidities that contribute to it, including diabetes, hypertension, vascular disease, chronic kidney disease, etc. More candid conversations need to be had between primary care physicians and their male patients regarding symptoms of ED, especially after the age of 40.

INTRODUCTION

Erectile dysfunction, more commonly referred to as ED and previously termed impotence, is a medical condition defined as the persistent inability to achieve and/or maintain an erection that is satisfactory and sufficient for sexual performance.^{1,2,3,4} In 1992, the NIH Consensus Development Panel on Impotence defined erectile dysfunction in very similar terms.^{5,6} In most cases, ED in patients presenting to the family medicine physician is of an acquired nature – i.e. the ED began after a period of normal erectile function the remainder, those who suffer ED from the outset of sexual desire, is beyond the scope of this article.² While these definitions seem to allow for considerable subjectivity from person-to-person, it is clear from the research on this subject that ED has a significantly higher prevalence among males aged 40 to 90 years old 70% of men greater than 70 years of age suffer from ED while only 5% of men younger than 40 years of age express such difficulty.² Family medicine physicians should feel comfortable enough distinguishing ED from other male sexual dysfunctions that may include libido issues, ejaculatory disorders, or infertility.⁵ This review article focuses primarily on the issues involving male ED, as it applies to family medicine physicians.

STATISTICS

While many men in the United States 43% will report erectile difficulty as a sexual problem at some point during their lifetime, it is evident that ED becomes more of an issue in the aging male popu-

lation. Notably, statistics indicate that by the year 2025, nearly 322 million men worldwide will report some degree of ED.^{3,7} The Massachusetts Male Aging Study MMAS, a cross-sectional survey of a randomly selected group of nearly 1,300 males in the Boston region initiated in 1987 and ending in 1989, helped shed further light on the subject of ED.⁶ This study discovered an overall occurrence of 52% for any degree of ED in men aged 40 to 70 years old. Incidence was found to increase nearly 12.5% in the decade of life 40-49 years of age, and an even higher incidence 46.4% was discovered in men between the ages of 60-69 years of age.⁵ This statistical analysis revealed a directly proportional increase in the incidence of ED with advancing age. Similarly, the Health Professionals Follow-Up Study, a study that began in 1986 with follow-up surveys mailed to participants every two years thereafter, surveyed approximately 31,000 health care professionals and found the prevalence of ED to be 33% for those men between the ages of 53 and 90 years of age.^{5,8} Perhaps surprisingly, most of these statistics suggest that ED is not as uncommon as many might think, and therefore, this condition warrants further clinical consideration by primary care physicians in the outpatient setting. Yet, knowing all this, ED can still go undetected by the physician as a result of male patients not actively pursuing a dialogue with their physicians when such issues arise. Table 1 (page 26) highlights some of the more commonly reported reasons as to why men do not seek out medical attention regarding ED.

PATHOPHYSIOLOGY

In order to understand the pathological process that encompasses ED, it is primarily essential that one understands the normal processes regarding male sexual function, more specifically, the physiology of male penile erection.

CORRESPONDENCE:

Roland W. Newman, II, DO | roland.newman@gmail.com

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TABLE 1:

Some Commonly Reported Reasons Why Men Do Not Seek Medical Attention Regarding ED

Perception that lack of complete erection is a part of normal aging processes	Sexual inactivity as a result of widowhood
Not perceiving ED as a medical disorder	Perception of a lack of effective treatment options
Ashamed to discuss sexual issues with doctor	

TABLE 2:

Risk Factors Associated with ED

Age	Cardiovascular Conditions
Metabolic Conditions	Lifestyle Habits
Chronic Kidney Disease	Medication Induced Side-effects
Hormonal (low testosterone)	Obesity
Psychological	

Male erection is a complex process that entails vascular, hormonal, neurological, and psychological components.² In the simplest context, it is external stimuli via autonomic and somatic pathways that help provoke penile erection. From a neuroanatomy perspective, we recognize the autonomic nervous system as being comprised of two divisions, the sympathetic nervous system (SNS) and the parasympathetic nervous system (PNS). However, in consideration of normal male erectile function, it is the pathway of the PNS and its activation that we are most concerned. From an osteopathic viewpoint, the autonomic pathways involved in normal penile erection are localized predominantly to sacral spine regions S2-S4 and are aligned with the parasympathetic nervous system. Nerve fibers of the inferior hypogastric plexus, comprised of parasympathetic fibers from the pelvic splanchnic nerves S2-S4 region and sympathetic fibers from the lower thoracic and upper lumbar region T12-L1, can be further subdivided into what is termed the prostatic plexus. The prostatic plexus itself contains both sympathetic nerve fibers responsible predominantly for ejaculation and parasympathetic nerve fibers formed predominantly from the pelvic splanchnic nerves that are responsible for normal penile erection.⁹

It is upon activation of PNS pathways that nitric oxide (NO) is released from penile cavernous nerves and endothelial cells. This release of NO is what leads to penile cavernosal smooth muscle relaxation, a decreased peripheral arteriolar resistance, and, sub-

sequently permits influx of blood into the penile cavernosum with concomitant decrease in venous drainage resulting in penile erection.² It is when these normal processes are disrupted, that ED is eventually perceived and then reported by the patient.

RISK FACTORS

Several studies have suggested possible associations between other comorbid health conditions and ED see Table 2. Some of the more considerable risk factors and comorbid conditions will be discussed here.

Age

As previously mentioned in this article, statistics reveal a modest increase in acquired ED beginning in the fourth decade of life and beyond.² This relationship seems to be directly proportional in nature –i.e. the older the male individual is, the more likely he is to suffer from ED. This relationship has been discussed more than once in literature.^{4,6,7,8} It is likely that these results are mostly attributable to the development of other comorbid disease states as the individual ages. Some of the more commonly observed comorbidities will be discussed in further detail below. In addition, aging itself has been attributed to natural declines in circulating testosterone levels that can have a negative effect on normal erectile function.¹⁰ See also section on Hormonal.

Cardiovascular

Medical literature provides ample documentation regarding traditional cardiovascular risk factors, specifically hypertension and dyslipidemia, as they relate to acquired ED. The more pivotal question that may arise is that of which came first. More recently, evidence suggests that acquired ED, in the right clinical scenario, may actually be an early indicator of ASCVD. Indeed, ED may precede the onset of identifiable cardiovascular events by as many as 3 to 5 years.¹¹ Clinical trials have demonstrated the presence of vascular disease in men suffering from ED even without the more traditional risk factors of hypertension, dyslipidemia, diabetes, etc.¹² Other studies also point to a relationship between ED and coexisting cardiovascular disease.¹² It has also been discovered that the increase in prevalence of acquired ED with age is followed by the development of atherosclerotic plaque lesions in the systemic vascular beds.¹² Prior prospective studies have indicated that in men without known CVD, those with ED have a higher risk of grouped CVD outcomes including CHD, stroke, PVD, and all-cause mortality as compared to those men without ED.¹³

Such evidence suggests that family medicine physicians should consider routinely screening their male patients for ED, especially those males 40 years of age or older, in light of assessing future cardiovascular risk.

Metabolic

Just recently, the United States Preventative Services Task Force has recommended grade B recommendation that overweight or obese adults between the ages of 40 and 70 years of age be screened for abnormal elevations in blood glucose levels in an attempt to detect metabolic syndrome and diabetes earlier. Diabetes is a condition that if left untreated or undertreated, can lead to catastrophic outcomes for patients. Some of the complications

attributed to diabetes include retinopathy, nephropathy, neuropathies, and limb infections with potential limb amputation, as well as myocardial infarction. While we certainly recognize these as the more notable complications of diabetes, diabetes has also been implicated in the development of acquired ED. Further investigation reveals that ED is more common in men with diabetes than in men without diabetes.¹⁴ Statistics indicate a prevalence of anywhere between 35-75% in diabetic males as compared to 26% in the general population.¹⁴ Men with diabetes are also more likely to experience problems with acquired ED 10 to 15 years earlier than their male counterparts without diabetes.¹⁴ Given the rather epidemic number of newly diagnosed diabetics annually, it may be prudent to screen adult diabetic males earlier on for signs of ED. Since diabetic males are more likely to experience ED than their non-diabetic counterparts, it is befitting for clinicians to screen males for ED, especially after age 40, as this also may be an early indicator of diabetic disease.¹⁵ The main mechanisms behind development of ED in diabetic males seem to be multifactorial and these changes do not occur suddenly, but rather, over the course of time. The factors that most often contribute to the development of ED in diabetic males are mainly neurologic usually comprised of autonomic neuropathy and vascular atherogenic in nature.¹⁴

Hormonal

Another topic that bears mentioning in the discussion of ED is male hormonal androgen deficiency or low testosterone (LT). The extent and breadth of this male-related problem is beyond the scope of this article, however, it is worth mentioning in the context of ED. More information has been gathered in recent years suggesting the direct effects of testosterone on penile tissues as they relate to erectile function. Testosterone deficiency results in decreased action of nitric oxide synthase and its production that has significant negative implications on normal erectile function.³ Moreover, when phosphodiesterase-5 inhibitor PDE-5 pharmacotherapy is suboptimal in resultant effect for treatment of ED, testosterone replacement therapy has been found to positively augment the effectiveness of PDE-5 treatment.^{3,16} While testosterone replacement therapy may play a role in the treatment of these individuals, one must also consider the potential for increased cardiovascular disease risk, heart attack and stroke, that is now known to be associated with testosterone replacement therapy. As it stands, approximately one-third of men with ED have some degree of hypogonadism, or LT.¹⁰ It has been understood from an assortment of clinical studies that serum concentrations of testosterone decline with age in the male patient for a variety of reasons.^{10,16,17} Synchronous elevation in the levels of circulating sex-hormone binding globulin (SHBG) with aging also contributes to the development of ED through a decreased bioavailability of free circulating testosterone.¹⁷

Lifestyle

Lifestyle choices can also play a significant role in the development of ED. Lifestyle and nutrition have a significant influence on the production of NO in vascular beds and subsequently, can affect normal male erection leading to the development of ED.⁷ It is now widely known that a sedentary lifestyle combined with a poor diet often lead to deleterious cardiovascular effects including secondary obesity (see Obesity section). Limited physical activity attributes to the evolution of ED by diminishing individual cardio-

vascular fitness, contributing to an increase in endothelial dysfunction, increasing oxidative stress on the body, and may contribute to poor self-esteem and mental outlook.⁷ Smoking, whether via direct use or via second-hand smoke exposure, also has deleterious effects on the body with known contributions to the development of ED. The mechanisms by which smoking promote ED are most likely related to its devastating negative effects on the vasculature, increased oxidative stress/damages, as well as decreased NO release.¹⁸ The statistics regarding the relationship between smoking and ED are alarming. When non-smoking men were compared to men who smoked up to 10 cigarettes per day, the smoking group had a 27 percent greater chance of developing ED. Men who smoked greater than 20 cigarettes per day had at least a 65 percent greater likelihood of suffering from ED.¹⁸ These numbers indicate a directly proportional link between the amount of cigarettes smoked and the development of ED.

Obesity

Excess adiposity also poses a risk for development of ED. The mechanisms by which adipocytes contribute to ED are probably related to hormonal effects more than anything else. It is known that adipocytes possess the capacity to peripherally convert testosterone to estrogen by aromatase, thereby reducing the free circulating amount of testosterone. Thus, the lowered circulating amount of testosterone can negatively effect normal erectile function contributing to development of ED. Since adipocytes function as endocrine cells, they also secrete adipocytokines and adipokines, with leptin being a primary constituent of these. Leptin receptors found in Leydig cells appear to have an inhibitory effect on the generation of testosterone.¹⁶ Also, noted in obese males is a decrease in luteinizing hormone (LH) pulse that occurs, hence, reducing the magnitude of downstream production of testosterone from the testicles.¹⁶

Medication Induced

Ironically, some of the medications used to treat co-morbid conditions often associated with ED, more specifically, hypertension, can also contribute to the development of ED. This issue should be of concern to physicians due to the fact that some male patients may reduce or even discontinue their anti-hypertensive regimen without first notifying their physician because of the undesired side-effect of ED. Such behaviors can have adverse effects on a patient's blood pressure control, potentially leading to undesired cardiovascular outcomes such as chronic renal disease, myocardial infarction, or even stroke.

While there remains a lack of absolute evidence on the matter, it has been suggested that the two classes of anti-hypertensive medication that contribute the most to the development of symptoms of ED are earlier generation beta-blockers and thiazide diuretics.⁴ Knowing this, it may be more prudent to periodically screen patients on such medications for ED in the appropriate clinical context. If ED is detected, it may be acceptable to modify anti-hypertensive therapy by using newer generation beta-blockers, such as nebivolol, ACE inhibitors, or ARBs in place of the earlier generation beta-blockers or thiazide diuretic, if deemed clinically appropriate and safe for the patient.

The use of chronic opioids in male patients suffering from ED is also a subset of patients worth mentioning here. Previous in-

vestigations of patients on long-term opioid therapy for chronic pain, specifically low back pain, have indicated increased need for awareness of co-morbid sexual dysfunction; including ED.¹⁹ Other studies have described a link between male hypogonadism and chronic opioid use due to the suppressive effects of opioids on the Hypothalamic-Pituitary-Gonadal HPG axis.¹⁹⁻²⁵ The lower circulating bioavailable levels of testosterone subsequently contribute to development of ED (see section “Hormonal” under Risk Factors).

Co-morbid Psychological/Psychiatric Disorders

In the 1970's, Masters and Johnson described male impotence, what we now know is ED, as a predominantly psychogenic problem with less than 10% of cases having an organic root cause.⁶ Much has changed in our understanding of ED since that time. Yet, while much of the attention focuses on organic causes, once these causes are ruled out, the clinician must also consider underlying psychogenic causes of ED. There have been several investigatory studies that have suggested an existing relationship between co-existing depression and anxiety in male patients who suffer from ED.²⁶ It is therefore important for the clinician to keep this in mind when evaluating a male patient for ED.

DIAGNOSTIC WORK-UP

Much of the diagnostic work-up for ED focuses on ruling out underlying comorbid organic disease. The 5-item abridged version of the International Index of Erectile Function IIEF-5 is an in-office questionnaire used to screen for the presence and severity of ED. Men's responses are scored and tallied for a total sum score that can then be interpreted. Refer to IIEF-5 questionnaire in Figure 1. Aside from this useful screening tool, it is also appropriate and essential to do a thorough physical exam, including examination of the male genitalia, as well as asking about previous sexual, psychological, and family history, recent or past recreational use of illicit drugs, and determination of present comorbid medical problems. Initial laboratory evaluation should at the very least include: blood glucose levels preferably fasting, HbA1c level, biochemical assessment of kidney function, as nearly 70 percent of males with chronic kidney disease report some degree of ED,²⁷ liver function tests, fasting cholesterol panel, as well as consideration of a work-up for acquired male hypogonadism including morning serum total testosterone level, TSH level, LH levels, and SHBG levels, if deemed appropriate (see Table 3). Evaluation for lower urinary tract symptoms including UA, DRE for prostate evaluation, and consideration of PSA in the appropriate clinical setting, are also prudent in the diagnostic evaluation process. Vascular studies to assess blood flow penile duplex ultrasonography and arteriography as well as psychiatric evaluation can also be considered, but usually not until after a thorough work-up as mentioned above has been performed.²

TREATMENT STRATEGIES

Oral Medicinal Approaches

The most widely accepted first line of oral treatments for ED remains the phosphodiesterase-5 (PDE-5) inhibitors. The medications available by prescription only in the U.S. that fall into this particular class are listed in Table 4. The American Urological Association endorses the use of sildenafil, tadalafil, vardenafil, and avanafil as first-line oral therapy in this class.³ These therapeutic

TABLE 3:

Suggested Laboratory Studies to Consider in the Work-up of ED

HbA1c	Fasting Glucose	CMP	Fasting Lipid Profile
TSH	LH levels	Morning Total Testosterone Level	Sex-Hormone Binding Globulin (SHBG) level
	Urinalysis	Prostate Specific Antigen (PSA) level	

agents inhibit the high concentrations of PDE-5 found in the corpora cavernosa and, through a cascade of chemical processes, help promote erection.² In an ideal patient i.e. those without comorbid contraindications, see “Contraindications and Cautions,” Table 3, they are generally effective, convenient, and well tolerated. One important point to stress when utilizing these medications is that in order for them to work appropriately, sexual stimulation is required. Many couples fail to understand this important point, and as such, may report an inadequate response to therapy or even perceived ineffectiveness of the medication. As a point of anticipatory guidance, the physician should attempt to explain this point to both partners. It is also important to note that this class of medication is contraindicated in patients who are currently taking nitrates as this combination can potentially lead to severe and life-threatening hypotension.¹¹ The physician should obtain a thorough sexual history in order to facilitate appropriate treatment dosing and/or strategies. Sildenafil, tadalafil, and vardenafil all share as needed dosing schedules usually taken anywhere from 30 minutes to 1 hour prior to sexual intercourse. Tadalafil is unique, however, in that it is the only one of the three that also carries a once daily dosing regimen without regard to timing of sexual activity. On follow-up visits to the office, the physician should inquire about the effectiveness of the medication, as failing to do so may often miss any potential for drug titration and/or further consideration/investigation in the matter. It is important to review these matters in follow-up visits with patients as there is as high as a 33 percent discontinuation rate of successful therapy with PDE-5 inhibitors for a variety of reasons (see Table 5) including unacceptability of planned sexual activity.²⁸

Non-Oral Medicinal Approaches

Other medicinal strategies include prostaglandin E1 (PGE1), also known as alprostadil, either via transurethral use or intracavernosal penile injections. While transurethral alprostadil can be considered an acceptable first line treatment option for ED alone or in combination with PDE-5 inhibitor therapy, intracavernosal injection of prostaglandin E1 therapy is considered more of a second line treatment strategy for ED.² Use of PGE1 can be helpful in those suffering from neurological conditions that contribute to ED as this approach often bypasses the need for intact neurological architecture as it applies to erection.² Potential adverse reactions to PGE1 therapy include headache, back pain, urethral pain and bleeding with intraurethral insertion, testicular pain, pro-

TABLE 4:

FDA Approved PDE-5 Inhibitor Therapies

Drug	Dosing	Half-Life	Commonly Reported Side-Effects	Contraindications & Cautions	Relative Cost
Sildenafil (Viagra®)	25,50,100mg PRN dosing (Max: 100mg/dose, 1 dose/24 hrs)	4 hours	Headache, Flushing, Visual Disturbances, Dyspepsia	CAD or H/O MI w/in 6 mo, HTN, Hypotension, Renal or Hepatic Impairment, Nitrate use within last 24 hrs	\$\$\$
Vardenafil (Levitra®)	2.5,5,10,20mg PRN dosing (Max: 20mg/dose, 1 dose/24 hrs)	4 hours	Headache, Rhinitis, CK elevations, Flushing, Abnormal LFT's, Back Pain, Lengthening of QT interval	Prolonged QT interval, Hepatic or Renal Impairment, HTN, CAD or H/O MI w/in 6 months, Nitrate use with last 24 hrs	\$\$\$\$
Tadalafil (Cialis®)	2.5,5,10,20mg PRN dosing 2.5-5mg daily regimen dosing	17.5 hours	Headache, Back Pain, Myalgia, Flushing, Nasal Congestion, Dyspepsia	HTN, CAD or H/O MI w/in 6 mo, Hypotension, Renal or Hepatic Impairment, Nitrate use within last 48 hrs	\$\$\$\$
Avanafil (Stendra®)	50,100,200mg PRN dosing (Max: 200mg/dose, 1 dose/24 hrs)	1.5 hours	Headache, Flushing, Nasal Congestion, Nasopharyngitis & Back Pain	CAD or H/O MI w/in 6 mo, HTN or Hypotension, Hepatic or Renal Impairment, History of hereditary retinal disorders	\$\$\$\$

Reference: ePocrates Drug Reference and adapted from Hakky, Tariq Said, and Lakshay Jain. "Current Use of Phosphodiesterase Inhibitors in Urology." *Türk Üroloji Dergisi/Turkish Journal of Urology Turkish Journal of Urology* 41.2 (2015): 88-92. PubMed Central. Web. 22 Sept. 2015.

longed erection, penile ecchymosis or fibrosis with intracavernosal injection, and influenza-like symptoms. PGE1 therapy should be avoided in patients who have sickle cell anemia or trait, penile deformities, or penile implants.^{29,30} Other options for intracavernosal injection other than PGE1 monotherapy include the addition of papaverine and/or phentolamine, although these additional agents may be considered more controversial.² Obvious deterrents to these methods are patient reported discomfort associated with penile injections or intraurethral insertion of PGE1.

Non-Medicinal Approaches

Vacuum assist devices or, vacuum erection devices VED, can be used effectively in most cases as a first-line treatment strategy for ED.² Although effective, there is a reported unfavorable acceptance amongst male patients and high long-term rate of discontinuation, mostly attributable to the peculiar feeling of the erection achieved with such device and the cumbersome nature of the entire process, in general.²

Other approaches, generally considered third-line strategies, would include penile prosthesis pumps and revascularization techniques that are beyond the scope of this particular article. In such cases, these patients are likely being evaluated and managed by urological specialists.

Osteopathic Manipulative Treatment OMT may also be utilized in male patients suffering from ED. Since somatic inputs from the

TABLE 5:

Reported Reasons for Discontinuation of PDE-5 Therapy Despite Effectiveness

Emotional unreadiness after an extended period of abstinence	Concerns regarding adverse effects of medication
Return of spontaneous erection	Refusal to accept 'drug-dependent' erections
Lack of sexual interest	Unacceptability of planned sexual intercourse

pubdental nerve S2-S4 and parasympathetic reflexes S2-S4 are involved in male erection, it would be beneficial to identify and target any potential somatic dysfunctions involving the S2-S4 nerve root distribution pelvic splanchnics. Possible somatic dysfunctions that may involve the sacroiliac SI joint include sacroiliac strains, sacral shears, as well as sacral torsions. These somatic dysfunctions should be considered in male patients suffering from ED when other organic causes have been ruled out.³¹ A variety of osteopathic treatments may be enacted for sacral dysfunctions including sacral rocking and various muscle energy techniques.

SUMMARY

Erectile dysfunction is a relatively important issue in men's health that warrants further discussion and consideration amongst primary care physicians. While it was originally believed that the underlying mechanism of ED was more psychogenic in nature, over the last 40 years such thinking has been abandoned in favor of investigating underlying organic causes as the primary contributor. The causes of ED are varied and it is clear that there are multitudes of medical comorbidities that contribute to it, including diabetes, hypertension, vascular disease, chronic kidney disease, etc. Conversations that are more candid need to be had between primary care physicians and their male patients regarding symptoms of ED, especially after the age of 40. While the topic may be one of considerable anxiety for many males in the context of a routine office visit, screening male patients for ED may help family physicians earlier discern undiagnosed cardiovascular health concerns as well as metabolic complications commonly associated with occult/undiagnosed diabetes. Diagnostic work-up includes routine chemistry studies, hemoglobin A1c HbA1c determination, UA, assessment of fasting cholesterol levels, and, in some cases, further analysis of laboratory studies for male hypogonadism, along with a thorough physical exam and medical history. Oral medicinal treatment

IIEF - 5 SCREENING QUESTIONNAIRE FOR ERECTILE DYSFUNCTION

Please Circle the Response That Best Describes You for the Following 5 Questions					
<i>Over the Past 6 Months:</i>					
1. How do you rate the confidence that you could get and keep an erection?	Very low 1	Low 2	Moderate 3	High 4	Very High 5
2. When you had erections with sexual stimulation, how often were your erections hard enough for penetration?	Almost never or never 1	A few times <i>(much less than half the time)</i> 2	Sometimes <i>(about half the time)</i> 3	Most times <i>(much more than half the time)</i> 4	Almost always or always 5
3. During sexual intercourse, how often were you able to maintain your erection after you had penetrated your partner?	Almost never or never 1	A few times <i>(much less than half the time)</i> 2	Sometimes <i>(about half the time)</i> 3	Most times <i>(much more than half the time)</i> 4	Almost always or always 5
4. During sexual intercourse, how difficult was it to maintain your erection to completion of intercourse?	Extremely difficult 1	Very difficult 2	Difficult 3	Slightly difficult 4	Not difficult 5
5. When you attempted sexual intercourse, how often was it satisfactory for you?	Almost never or never 1	A few times 2	Sometimes 3	Most times 4	Almost always or always 5

TOTAL SCORE: _____

INTERPRETATIONS: 1 - 7: Severe ED 8 - 11: Moderate ED 12 - 16: Mild-Moderate ED 17 - 21: Mild ED 22 - 25: No ED

strategies in the form of PDE-5 inhibitors are now widely available in the United States, allow for relative patient convenience, and, generally speaking, can be safely prescribed by most primary care physicians under the appropriate circumstances. If first line therapies such as the oral PDE-5 inhibitors, injection therapies, intraurethral therapies, or VEDs do not prove effective, then further work-up and more invasive strategies may be considered necessary under the guidance of a trained urological specialist. Identifying sacral somatic dysfunctions and providing corrective treatment with osteopathic manipulative therapy may also be a helpful adjunct to other conventional strategies.

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Pediatric Axillary Rash

Michelle McCauley, OMS IV¹ & Lindsay Tjiattas-Saleski DO, MBA, FACOFP²

¹Edward Via College of Osteopathic Medicine Carolinas Campus-Spartanburg, South Carolina

²Palmetto Health Tuomey Medical Center, Sumter, South Carolina

A 1-year-old male presented with a history of an upper respiratory infection and fever for 48 hours followed by two papular lesions that developed over the left axillary region (Figure 1). This rash subsequently spread only over the left torso and inner arm, and the erythematous papules developed a central clearing (Figure 2). The rash became more pruritic over time. The patient was diagnosed with ringworm and started on an antifungal without improvement. Another physician then prescribed a trial of cephalexin, also without improvement. The rash never spread to the other side of the body and was not associated with any fevers, chills, oral lesions, or lesions on the palms or soles. The rash resolved on its own in two weeks. The patient's sibling also developed a similar rash, which resolved without treatment as well.

QUESTIONS:

What is the most likely diagnosis?

- A. Lichen striatus
- B. Pityriasis rosea
- C. Tinea Corporis
- D. Unilateral Laterothoracic Exanthem

What is the recommended treatment?

- A. Oral antibiotics
- B. Supportive care and symptomatic treatment
- C. Topical corticosteroids
- D. Topical antifungals

FIGURE 1:

Primary papules



FIGURE 2:

Spread of lesions



CORRESPONDENCE:

Lindsay Tjiattas-Saleski, DO, MBA, FACOFP | Lrtj55@yahoo.com

ANSWERS

What is the most likely diagnosis?

The correct answer is:

D) Unilateral Laterothoracic Exanthem

Unilateral Laterothoracic Exanthem (ULTE). ULTE is a rare, self-limiting unilateral rash that most commonly occurs in children. It is usually preceded by an upper respiratory viral illness with the eruption of the exanthema starting in the axillary region.⁹ Lichen striatus is a self-limiting rash that occurs in children, suspected to be caused by viral infection.⁹ It is usually asymptomatic, but may be associated with mild pruritus.⁹ The rash presents as hypo-pigmented flat-topped papules or vesicles in a streak-like pattern occurring along the lines of Blaschko.⁹ It is usually localized to one extremity, but can be bilateral.⁹ Pityriasis rosea is a self-limiting skin eruption of unknown etiology that usually occurs between ages 10 and 35 years.¹⁰ It presents as an initial oval/round "herald patch" that precedes the full eruption that distributes along the cleavage lines of the trunk "Christmas tree pattern."¹⁰ Tinea corporis is a fungal infection caused by the genera *Trichophyton* or *Microsporum* and does not show predisposition to age or sex.¹⁰ It presents as single or multiple typically pruritic lesions with a progressing scaling border and central clearing.¹⁰

What is the recommended treatment?

The correct answer is:

B) Supportive care and symptomatic treatment

Unilateral Laterothoracic Exanthem spontaneously resolves in 4-6 weeks.^{1,3,4,5,7} Antibiotics, topical steroids, and hydroxyzine have not been found to change the appearance and duration of the exanthem.³ Treatment is focused on alleviation of symptoms.^{2,5}

DISCUSSION

Unilateral Laterothoracic Exanthem (ULTE), also referred to as Asymmetric Periflexural Exanthem of Childhood (APEC) and most recently Superimposed Lateralized Exanthem of Childhood (SLEC), is an uncommon and self-limited exanthem first described in the United States in 1962 by Brunner *et al.* with Bodemer and de Prost later exploring the exanthem, more comprehensively, in 1992.¹⁻³ The skin eruption most commonly occurs in children with rare cases in adults.⁴ The mean age of presentation is at 2 years old. However, affected children range from ages 4 months to 10 years.^{2,4} Retrospective studies have shown a 2:1 female predominance, but in a prospective study done by Coustou *et al.* the ratio was 1:1.⁵ Most cases typically occur during the winter and spring with no human-to-human transmission being reported and in rare instances more than one occurrence within a family.^{2,5}

The eruption is characterized by erythematous micropapules commonly surrounded by a pale halo.⁵ The exanthem almost always starts unilaterally, most commonly in the axilla, spreading centrifugally to involve the contralateral side in 50% of cases, lending the term unilateral misleading.⁴⁻⁶ In addition to the axilla, the most common sites of involvement include the trunk and arms with minimal to rare involvement of the face, genitals, palms and soles.^{2,3,5,6}

Pruritus is reported in approximately 50% of the cases; however, lichenification is rarely present.^{2,5,7} The clinical course can be defined in 4 main phases. The lesion will have a morbilliform or eczematous appearance. Coalescence of the lesions will begin, along with a centrifugal spread of the initial lesion with occasional areas of normal skin that have been spared. Coalescence of lesions is followed by varying degrees of dissemination bilaterally, with the originally involved side usually maintaining a more predominant involvement. Regression of older lesions leaves a dusky-gray appearance that is eventually followed by desquamation.^{2,3,5}

This rare exanthem is most frequently mistaken as contact dermatitis.⁷ Differentials include, but are not limited to: nonspecific viral exanthems, drug-related eruption, Gianotti-Crosti Syndrome, miliaria, lichen striatus, milia, scarlet fever, fungal infections, scabies, and pityriasis rosea.^{2,7} With a history of unilateral onset, the diagnosis can be made clinically, with biopsy not generally being needed for diagnosis.^{1,7} However histological evaluation, during the first 3 weeks of onset shows, mononuclear interface dermatitis containing apoptotic and necrotic keratinocytes along with a dermal mononuclear infiltrate predominantly consisting of T lymphocytes with infrequent B lymphocytes.^{3,5,6} Coustou *et al.* reported a predominance of CD4 lymphocytes where McCuaig *et al.* reported a predominance of CD8 cells.^{5,6} There is a pronounced lymphocytic infiltration around eccrine glands which extends from the acrosyringium to the coiled sweat gland.^{5,6} A perisudoral distribution of infiltrate has been noted along with exocytosis and spongiosis around the terminal intraepidermal portion of eccrine ducts.^{1,2,5,6} Acanthosis and parakeratosis have been observed in the papillary dermis.¹

The exanthem spontaneously resolves in 4-6 weeks.^{1,3,4,5,7} Antibiotics, topical steroids, and hydroxyzine have not been found to change the appearance and duration of the exanthem.³ Treatment is focused on alleviation of symptoms.^{2,5} Topical corticosteroids gave a variable response. Antihistamines were proven to be beneficial when there was significant pruritus present. Hydrating creams and bath oils were helpful during the late desquamative phase.^{2,3,5}

Studies continue to search for a cause of SLEC. Although a definitive cause has yet to be found, a close temporal relation to rhinitis, mild fever, lymphadenopathy, and diarrhea has been noted, suggesting a viral connection.^{6,7} Scheinfeld postulated that SLEC could be related to a reactivation of a viral infection after a case in which EBV titer results were consistent with an EBV reactivation.⁴ In another case, serological findings in a child with SLEC showed a recent adenovirus infection.¹ A relationship with parainfluenza virus 2 or 3, parvovirus B19, and Human papilloma virus 6 or 7 has also been contemplated.^{1,5} Niedermeier *et al.* also suggested the lateralized involvement might be explained by a post zygotic mutational event in which cutaneous epitopes on one side of the body were changed at an early stage of embryogenesis resulting in an altered response to infectious agents.¹

Future studies are needed to determine whether the current causal hypotheses can be accepted. The rash does not usually affect the general health of the patient.⁸ Due to the self-limiting nature of this exanthem, finding a causative agent is not vital to the patients' outcome.^{1,2,7}

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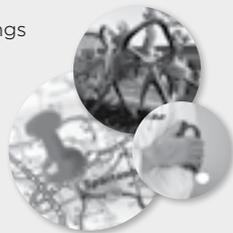


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APRIL 19 - 23, 2017

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Okemos, Michigan
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ERECTILE DYSFUNCTION

Peter Zajac, DO, FACOFP, Author

Amy J. Keenum, DO, PharmD, Editor • Ronald Januchowski, DO, FACOFP, Health Literacy Editor



Erectile dysfunction (impotence) is the inability to obtain and maintain an erection. Some of the common causes include aging due to reduced blood flow to the penis, alcohol and tobacco use, diabetes, diseases or injuries that affect the nerves going to the penis, heart disease, hormonal causes, obesity, and side effects of certain medications. Stress, anxiety and depression also can play a role. Complications resulting from erectile dysfunction can include an unsatisfactory sex life, a low self-esteem, relationship problems, and the inability to get your partner pregnant.

MANAGEMENT INCLUDES:

- **Diet & Exercise**
Eat a healthy diet (a low salt and fat diet with fruits and vegetables.) Exercise regularly. If possible, aim for at least 30 minutes of physical activity on most days of the week (e.g. brisk walking, swimming, dancing, etc.). If you are overweight or obese (defined by a Body Mass index (BMI) of 25 or higher), this can increase your risk of high blood pressure. Lose some weight. Reduce your stress. Stress can make your heart beat faster and your blood vessels contract that may be harmful over time.
- **Alcohol & Tobacco Use**
If you consume alcohol, please drink in moderation and sensibly. If you smoke, make every effort to stop. Both can increase your chance of developing erectile dysfunction along with other potential medical conditions.
- **High Blood Pressure & Cholesterol**
Check your blood pressure regularly along with your cholesterol levels. If either is high, your doctor will be able to help with treatment.
- **Diabetes**
If you have diabetes, good control of your blood sugar levels and blood pressure can help minimize the impact of diabetes on the blood vessels.
- **Medications**
Some medications can cause erectile dysfunction. Check the leaflet that comes with any medication that you take to see if erectile dysfunction is a possible side effect. Do not stop any prescribed medication but see your family doctor if you suspect this to be the cause. Your doctor may be able to switch to a different medicine to reduce side effects.

MEDICAL CARE & TREATMENT OPTIONS:

If you have any questions about erectile dysfunction, please contact your Osteopathic Family Physician. Your physician can diagnose erectile dysfunction with a thorough history and physical exam along with the appropriate tests. Management includes the right treatment plan and any necessary follow-up with your doctor. Your family doctor will help you determine which current recommended treatment(s) (including medications, devices/implants, counseling, etc.) will work best for you. In case of any emergency, you should call your doctor or 911 right away.

SOURCE(S): *Erectile Dysfunction. Gov, Mayo Clinic, and Up-To-Date.*

The Osteopathic Family Physician Patient Handout is a public service of the ACOFP. The information and recommendations appearing on this page are appropriate in many instances; however, they are not a substitute for medical diagnosis by a physician. For specific information concerning your personal medical condition, ACOFP suggests that you consult your family physician. This page may be photocopied noncommercially by physicians and other health care professionals to share with their patients.

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