

TexMed 2016 Clinical Abstract

Please complete all of the following sections:

Procedure and Selection Criteria

- Submissions not directly related to quality improvement or research may be accepted and should follow the standardized format outlined below. Content should enhance knowledge in the field of clinical care and be relevant to a given patient population.

PROJECT NAME: Sedentary Behavior and the Association with Proliferative Breast Lesions

Institution or Practice Name: The University of Texas MD Anderson Cancer Center

Setting of Care: MD Anderson Clinic

Primary Author: Sid Venkataraman (TMA member)

Secondary Author: Weiqin Liao

Other Members of Project Team: Therese Bevers, M.D., Powel Brown, M.D., Ph.D., Karen Basen-Engquist, Ph.D., Abenaa M. Brester, M.D., M.H.S.

Is the Primary Author, Secondary Author or Member of Project Team a TMA member (required)?

Yes No

Please provide name(s): Sidish Venkataraman

Enhanced Perioperative Recovery/Future of Surgical Care program

Clinical

Background (15 points max): *Describe the purpose for sharing the content. What caused this subject matter to be approached? Why is this content important to share? What is the potential impact if this content is not shared?*

The pinnacle of medical advancement is prevention. A focus on disease prevention will not only improve national health, but it will significantly reduce health care costs and improve quality of care. This research sought to explore the association between sedentary behavior and proliferative breast lesions in order to investigate ways in which lifestyle factors can be modified to prevent breast cancer. By sharing this research, I hope to emphasize the importance of an active lifestyle and encourage preventative breast cancer research. Breast cancer caused nearly 40,000 deaths in 2014 and accounted for about 30% of newly diagnosed cancers. This research is one of the only studies to explore sedentary behavior on proliferative breast lesions. If this information is not shared, the importance of avoiding sedentary behaviors will not be recognized.

Intended Stakeholders (15 points max): *Identify those individuals, organizations, or interest groups that could be potentially impacted by this information or benefit by obtaining this information.*

This research impacts, because it focuses on cancer prevention, impacts every individual interested in improving their health and every organization that is involved in healthcare. Research has suggested that prolonged sitting can increase levels of triglycerides, inflammation, and cholesterol, but taking frequent breaks as short as 1 minute can dramatically reduce these biomarkers. While many research projects have explored exercise and breast cancer risk, few have looked sedentary behavior (total sitting time) as a unique risk factor. The importance of investigating sitting time is that it suggests small behavioral changes may be sufficient to significantly reduce breast cancer risk.

Description of Accomplished Work (25 points max): *Provide an overview of the work that was accomplished, including any specific methods, tools or techniques. Also, include any milestones or key accomplishments. Note charts, graphs and tables here and send as addendum with abstract form.*

In order to assess sitting time, study participants were given a validated international physical activity questionnaire (IPAQ). Cases, women having proliferative breast lesions, and controls, those without, were compared using Chi-Square tests for demographic characteristics. Logistic Regression was used to estimate the adjusted odds ratio (OR) and corresponding 95% confidence interval (CI) for the association between sedentary behavior and proliferative breast lesions. All statistical analyses were conducted using R software.

This project is one of the first to explore the association between proliferative breast lesions and sedentary behavior. While a larger patient population is still being collected and the interplay between physical activity and sedentary behavior needs to be considered, this research is an important step towards understanding ways in which lifestyle factors can be changed to improve health.

Preliminary data indicate that cases differed significantly from controls in age, menopausal status, racial background, family history, and tobacco and hormone replacement therapy use (see addendum, Figure 1). Further, in the adjusted logistic model, African-American or Hispanic ethnicity and smoking were associated

with an increased risk of proliferative breast lesions while hormone therapy use and family history were associated with a decreased risk (see addendum, Figure 2). Additionally, the adjusted logistic model showed no significant association between sedentary behavior and proliferative breast lesions (see addendum, Figure 2).

Timeframe and Budget (20 points max): *Provide the start and end dates for the work along with any financial implications that were incurred due to the work accomplished. Note charts, graphs and tables here and send as addendum with abstract form.*

This study was a hospital based case-control study nested within a prospective longitudinal cohort study. Enrollment into the study began in Spring 2011 and ended in Summer 2015. Data analysis began in June 2015 and is ongoing.

Study enrollment and completion of the surveys were both voluntary and free of cost. No additional fees, other than employee salaries were incurred.

Intended Use (25 points max): *Describe how this information could be used moving forward to impact patient care.*

This study provides a foundation upon which future research can be conducted. Next steps in this project include investigating the added effect of physical activity on proliferative breast lesions and conducting a prospective cohort study evaluating sedentary behavior and risk of developing invasive breast cancer. Together, this information can be used to improve national healthcare and prevent cancer risk. The hope is that this information can be used to encourage the public to reduce sitting time by making small lifestyle changes such as getting up to get water, taking more frequent breaks, and walking down the hallway. The incorporation of these habits into daily life could reduce cancer risk.

ADDENDUM

Figure 1: Selected Significant Demographic and Breast Cancer Risk Factors Between Cases and Controls (N=1007)

Variables	All (N=1,007)	Cases (N=429)	Controls (N=578)	P-Value
	N (%)	Proliferative N (%)	No Proliferative N (%)	
Age				
≤50	203 (20.2)	109 (25.4)	94 (16.3)	< 0.001
51-60	363 (36.0)	166 (38.7)	197 (34.1)	
61-70	323 (32.1)	107 (24.9)	216 (37.4)	
>70	118 (11.7)	47 (11.0)	71 (12.3)	
Menopausal Status				
Postmenopausal	827 (82.1)	331 (77.2)	496 (85.8)	< 0.001
Premenopausal	178 (17.7)	97 (22.6)	81 (14.0)	
Missing	2 (0.2)	1 (0.2)	1 (0.2)	
Racial Background				
Non-Hispanic, White	791 (78.6)	313 (73.4)	478 (82.4)	< 0.001
Non-Hispanic, Black	48 (4.8)	31 (7.2)	17 (2.9)	
Hispanic	73 (7.4)	42 (9.8)	33 (5.7)	
Other	46 (4.6)	21 (4.9)	25 (4.3)	
Missing	47 (4.7)	20 (4.7)	27 (4.7)	
Family History				
Yes	366 (36.2)	154 (35.9)	412 (71.3)	< 0.001
No	430 (42.7)	270 (62.9)	160 (27.7)	
Missing	11 (1.1)	3 (1.2)	6 (1.0)	
Tobacco				
Current	33 (3.3)	22 (5.1)	13 (2.2)	0.03
Former	263 (26.1)	116 (27.0)	147 (25.4)	
Never	707 (70.2)	290 (67.6)	417 (72.1)	
Missing	2 (0.2)	1 (0.2)	1 (0.2)	
Hormone Replacement Therapy				
Current	93 (9.4)	23 (5.4)	72 (12.5)	< 0.001
Former	332 (33.0)	136 (31.7)	196 (33.9)	
Never	554 (55.0)	262 (61.1)	292 (50.5)	
Missing	26 (2.6)	8 (1.9)	18 (3.1)	

Figure 2: Adjusted Logistic Model of Sedentary Behavior and Proliferative Breast Lesions (N=1007)

Variables	OR	95% CI	P-Value
Total Time Spent Sitting (hr/day)			
<3	1.00	Ref.	
3-5	0.89	0.59-1.36	0.59
5-6.5	1.50	0.97-2.35	0.07
≥6.5	0.96	0.62-1.49	0.85
Age			
≤50	1.00	Ref.	
51-60	0.87	0.54-1.39	0.56
61-70	0.44	0.26-0.77	0.004
>70	0.58	0.31-1.11	0.10
Racial Background			
Non-Hispanic, White	1.00	Ref.	
Non-Hispanic, Black	3.85	1.91-7.75	< 0.001
Hispanic	1.80	1.03-3.16	0.04
Other	0.86	0.43-1.71	0.67
Family History			
No	1.00	Ref.	
Yes	0.20	0.15-0.27	< 0.001
Tobacco			
Never	1.00	Ref.	
Former	1.51	1.09-2.12	0.04
Current	2.43	0.19-0.61	< 0.001
Hormone Replacement Therapy			
Never	1.00	Ref.	
Former	1.01	0.71-1.46	0.94
Current	0.34	0.19-0.61	< 0.001