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Acute Coronary Syndrome Symptoms in Japan

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Purpose:

Cardiovascular disease is the leading cause of death worldwide. By 2030, the estimated global cost of cardiovascular disease is expected to top $1 trillion and account for over 23.6 million deaths (Benjamin et al., 2017). Cardiovascular disease is the second leading cause of death in Japan and while the United States (U.S.) has seen a decline in the number of people with cardiovascular disease, Japan has seen an increased incidence especially in metropolitan men (Kitakaze, 2015). Symptom recognition in acute coronary syndrome (ACS) remains a global issue and some symptoms may not be recognized by patients. In a sample of European, Chinese, and South Asian patients, women were more likely to delay seeking treatment and patients of Chinese and South Asian descent were more likely to identify symptoms as non-urgent (King-Shier et al., 2015). Ethnic differences in symptoms were found in a diverse sample of patients from the U.S. with Caucasian patients reporting more atypical symptoms than Korean, Indian, and Chinese patients. While differences in presentation existed, the symptoms were not correlated with a final diagnosis of ACS so the predictive value of symptoms is unclear (Greenslade et al., 2012). There are ethnic differences in ACS symptom presentation (Greenslade et al., 2012; Kurich, Lasiuk, & Norris, 2017), but no studies published in English were identified that specifically examined the Japanese population.

While fatigue is a common symptom prior to and at the time of an ACS event in the U.S., little research has been conducted with a Japanese population. As the world becomes increasingly global, it is imperative that practitioners understand the potential ethnic variations in symptom expression. It is also important that researchers from around the globe work together to complete cross cultural comparative research to further expand the knowledge base. After a lack of research published in English specifically assessing symptoms in Japanese patients, a cardiovascular researcher from the U.S. sought out and developed a collaborative relationship with a colleague from Japan. The ensuing collaboration led to the formation of a research team, grant applications, and the pursuit of research endeavors in the U.S. and Japan.

The purpose of this study was to identify common symptoms of ACS and identify whether fatigue was a common symptom in a sample of patients from Japan. The institutional review board at each site reviewed and approved the research.

Methods:

Japanese patients (N = 48) were recruited during hospitalization for ACS from two university hospitals in Japan for this descriptive, cross sectional study. All patients completed the ACS Symptom Checklist (ACS symptoms), Fatigue Symptom Inventory (intensity of fatigue and interference from fatigue), Patient Health Questionnaire 9 (depressive symptoms), and Generalized Anxiety Disorder 7 (anxiety) during

hospitalization for ACS. The ACS Symptom Checklist and Fatigue Symptom Inventory were translated into Japanese for this study. Each instrument was translated into Japanese, the translation was checked by a second individual, and then the tools were back translated into English by a separate individual to assure the translation was accurate. Data were collected from 2016-2017 by researchers in Japan.

Results:

The sample was primarily male (83%) and entirely of Japanese descent. The mean age was 64 years (SD 11.3 years). The most frequently reported symptom was palpitations (62.5%), followed by lightheaded (60%), arm pain (50%), shoulder pain (47.9%), and upper back pain (41.7%). The least reported symptom was shortness of breath (12.5%), followed by chest pressure (16.7%), chest pain (18.7%), indigestion (20.8%), and chest discomfort (22.9%). Unusual fatigue was reported by 27.1% of participants. In this sample, 54% of participants reported no depressive symptoms, 21% reported mild depressive symptoms, and 25% reported moderate or moderately severe depressive symptoms on the Patient Health Questionnaire 9 (PHQ9). On the Generalized Anxiety Disorder 7 (GAD7), only 12.5% of participants reported having anxiety.

Fatigue intensity and interference with activities of daily living were measured using the Fatigue Symptom Inventory (FSI). Seventy-nine percent of participants reported clinically meaningful fatigue as evidenced by an average fatigue intensity score ≥ 3. When asked to rate fatigue on the day they were least fatigued, the mean score was 2.55 ± 1.89, indicating that even on the day of least fatigue, the majority of participants experienced fatigue. On the day participants were most fatigued, a mean score of 5.63 ± 2.60 was reported and, on an average day, the mean was 4.40 ± 2.22 indicating clinically significant fatigue on the average day. The average FSI interference score was 3.60 ± 2.07 indicating that fatigue interfered with normal daily activities.

Conclusion:

While chest pain, discomfort, and pressure were reported by less than 23% of the sample, the same symptoms demonstrated the highest sensitivity for ACS diagnosis in a sample of adults in the U.S. (DeVon, Rosenfeld, Steffen, & Daya, 2014). While chest pain, discomfort, and pressure are predictive of ACS diagnosis, these symptoms are not as frequently experienced by the elderly or women in the U.S. (Rosenfeld et al., 2015). Consistently using typical symptoms to identify ACS patients may lead clinicians to misdiagnose or delay treatment in some patients who are more likely to report atypical symptoms.

Fatigue intensity reported by patients in Japan is similar to patients with stable coronary heart disease in the U.S., but interference with daily activities from fatigue was worse (Eckhardt, DeVon, Piano, Ryan, & Zerwic, 2014). Overall, participants in the current sample reported clinically significant fatigue. While only 27.1% of participants reported unusual fatigue as a symptom, nearly 80% reported clinically significant fatigue indicating that while fatigue was present, it was not consistently recognized as a symptom. Overall, participants in Japan did not report the same symptom profile as published data from the U.S.; however, clinically significant fatigue was experienced by the majority of Japanese participants similar to reports of fatigue in ACS patients in the U.S.

While identifying common symptoms is important, the researchers also learned a great deal about cross cultural collaborative research. Planning research that spans countries is challenging for a multitude of reasons. Researchers must work together to overcome obstacles like ineffective communication, misunderstandings, and differing institutional review board requirements. While leveraging technology is an important way to communicate and collaborate, nothing can replace the power of personal meetings. The ability to meet with collaborators, tour research facilities, and establish a relationship is extremely essential. Cross cultural collaborative research is not easy, but it is crucial in the global society. Lessons learned from this cross cultural collaboration include clarity in communication and development of ongoing relationships.

Title:
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Keywords:
cardiovascular disease, fatigue and international collaboration

References:
Benjamin, E. J., Blaha, M. J., Chiuve, S. E., Cushman, M., Das, S. R., Deo, R., …Muntner, P. (2017). Heart disease and stroke statistics—2017 update. *Circulation,* 135. doi: 10.1161/CIR.0000000000000485

DeVon, H. A., Rosenfeld, A., Steffen, A. D., & Daya, M. (2014). Sensitivity, specificity, and sex differences in symptoms reported on the 13-item acute coronary syndrome checklist. *Journal of the American Heart Association, 3*(2), 1-9. doi: 10.1161/JAHA.113.000586

Eckhardt, A. L., DeVon, H. A., Piano, M. R., Ryan, C. J., & Zerwic, J. J. (2014). Fatigue in the presence of coronary herat disease. *Nursing Research, 63*(2), 83-93. doi: 10.1097/NNR.0000000000000019

Greenslade, J. H., Cullen, L., Parsonage, W., Reid, C. M., Body, R., Richards, M., …Than, M. (2012). Examining the signs and symptoms experienced by individuals with suspected acute coronary syndrome in the Asia-Pacific region: A prospective observational study. *Annals of Emergency Medicine, 2012*, 777-785. doi: 10.1016/j.annemergmed.2012.05.008

King-Shier, K. M., Singh, S., LeBlanc, P., Mather, C. M., Hunphrey, R., Quan, H., & Khan, N. A. (2015). The influence of ethnicity and gender on navigating an acute coronary syndrome event. *European Journal of Cardiovascular Nursing, 14,* 240-247. doi: 10.1177/1474515114529690

Kitakaze, M. (2015). Trends in characteristics of CVD in Asia and Japan: The importance of epidemiological studies and beyond. *Journal of the American College of Cardiology, 66*, 196-198. doi: 10.1016/j.jacc.2015.05.035

Kurich, T., Lasiuk, G. C., & Norris, C. M. (2017). Acute coronary syndrome symptom presentation among persons of South Asian descent: A comprehensive literature review. *Canadian Journal of Cardiovascular Nursing, 27*(1), 6-13.

Rosenfeld, A. G., Knight, E. P., Steffen, A., Burke, L., Daya, M., & DeVon, H. A. (2015). Symptom clusters in patients presenting to the emergency department with possible acute coronary syndrome differ by age, sex, and discharge diagnosis. *Heart & Lung, 44,* 368-375. doi: 10.1016/j.hrtlng.2015.05.008

Abstract Summary:
The presentation will provide information on acute coronary syndrome (ACS) symptoms in a metropolitan Japanese population. Comparisons will be drawn between the study sample and published data. This research was undertaken as part of an ongoing international collaboration; therefore, the presentation will include information of forming successful international collaborative partnerships.

Content Outline:
Background

- Global burden of cardiovascular disease including specific statistics for the United States and Japan

Review of Literature

- Ethnic and gender differences in symptom expression during an acute coronary syndrome event
- Current data related to symptoms of ACS in the U.S. and Japan

Methodology

- Research design, recruitment, sample, and instruments
- Reliability and validity of each instrument
- Method used to translate the Fatigue Symptom Inventory and ACS Symptom Checklist

Results

- Symptom prevalence within the sample using data from the ACS Symptom Checklist
- Fatigue intensity and interference with activities of daily living
- Depression and anxiety prevalence in the sample
- Connections will be drawn between findings in this study and published results from other studies

Discussion

- Connections between the findings of this study and findings from published literature
- In the current study, chest pain, discomfort, and pressure were reported by a small percentage of the sample which is interesting considering those symptoms are the most sensitive for diagnosing ACS in the U.S.
- Potential reasons for the discrepancies between published literature and the current sample
- Limitations of the current research as well as strengths
- Discussion of forming international research collaborations
- Overview of lessons learned that will benefit the audience

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Professional Experience: 2003-2006 Staff Nurse Level III, Carle Foundation Hospital, Urbana, IL 2006-present Administrative House Officer, Carle Foundation Hospital, Urbana, IL 2011-2012 Visiting Instructor, School of Nursing, Illinois Wesleyan University, Bloomington, IL 2012-present Assistant Professor, School of Nursing, Illinois Wesleyan University, Bloomington, IL Responsible for teaching undergraduate students health assessment, leadership/management in nursing, and senior seminar in professional nursing. Maintain clinical expertise in the area of nursing leadership. Guide students through the completion of senior honors research. Continue personal program of research on fatigue as a symptom of coronary heart disease. Publications and presentations at regional and national conferences.
Author Summary: Dr. Eckhardt is an Assistant Professor of Nursing at Illinois Wesleyan University in Bloomington, Illinois. Her program of research focuses on cardiovascular disease symptomatology with a specific emphasis on fatigue as a symptom. Dr. Eckhardt began an international collaboration in 2014 which continues today. Her ongoing collaboration will allow for direct comparison between patients in the United States and Japan using the same instruments and will include longitudinal data.

Second Author

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Author Summary: Renaguli Abuliezi graduated from Zhejiang University in China in 2015 with a major in preventive medicine. She has been a research student since October 2016 at International Nursing Development, Graduate School of Health Care Sciences, Tokyo Medical and Dental University. She has been working with Drs. Eckhardt and Kondo since October 2016.