Relationship Between Brassiere Cup Size and Shoulder-Neck Pain in Women

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Abstract: There are very few reports in regard to relationship between breast size and shoulder-neck pain. The purpose of this study is to examine the correlations among breast size, brassiere cup size, and moment-in-time reporting of shoulder-neck pain in a group of adult women. Three hundred thirty nine female volunteers from the hospital staff answered the questionnaire. Breast size, brassiere cup size, and shoulder-neck pain were self-reported by each participant. The relationship among breast size, brassiere cup size and shoulder-neck pain was investigated. Spearman’s test showed no significant relationship between shoulder-neck pain and brassiere cup size. However, after participants were classified into two groups (small brassiere cup size and large brassiere cup size with 219 and 120 participants, respectively), there was a significant positive correlation between shoulder-neck pain and large brassiere cup size (p < 0.05). There was no significant relationship between shoulder-neck pain and breast size. In conclusion, large brassiere cup size is an important cause of shoulder-neck pain.

Keywords: Breast size, brassiere cup size, female, neck pain, questionnaire survey, shoulder pain.

INTRODUCTION

Shoulder-neck pain, including upper back pain, is one of the most common presenting symptoms in our orthopedic practice. According to the Comprehensive Survey of Living Conditions of the Japanese People conducted in 2010, 13.0% of women and 6.0% of men complain of shoulder-neck pain [1, 2]. Shoulder-neck pain is felt anywhere in the posterior aspect of the thoracic cage, in the region between the first rib and the first thoracic vertebra superiorly and between the seventh vertebra and the ribs inferiorly (inferior angle of the scapula), as well as in the periscapular areas.

Women with large breasts usually have a number of complaints relating to the skeletal system, and complaints such as neck strain, headache, aching shoulders, heavy anterior chest, and paresthesiae of the little fingers disappear after reduction mammoplasty [3, 4]. This finding suggests a cause and effect relationship between breast size and shoulder-neck pain. However, only one study has investigated this relationship, and the authors concluded that shoulder-neck pain appeared to be unrelated to breast size [5].

The present study was undertaken to examine the correlations among breast size, brassiere cup size, and moment-in-time reporting of shoulder-neck pain in a group of adult women. Clarification of potential relationships may contribute to the care of women presenting with shoulder-neck pain.

METHODS

A total of 339 women, volunteers from the hospital staff (nurses, pharmacy, and kitchen staff of two hospitals), were enrolled. All participants gave their informed consent before answering the questionnaire. The study protocol was approved by the ethics committee of our institution. The questions were as follows: 1) Presence of operation and/or injury of the spine and/or shoulder (Yes/No); 2) Past history and present illness; 3) Top breast size (cm); 4) Brassiere cup size (A or less, B, C, D, E or more); and 5) Shoulder-neck pain at present (Yes (visual analogue scale (VAS) score)/No). Breast size, brassiere cup size, and shoulder-neck pain were self-reported by each participant.

Women with breast pathology, injury, systemic or vertebral diseases, history of spinal surgery, or who were using any medication related to musculoskeletal or non-musculoskeletal pain were excluded from the data analysis. The age range of the participants was 18 to 77 years (average 44.5 years).

The VAS score was used for pain assessment. Operationally, the VAS is usually a horizontal line, 100 mm in length, anchored by word descriptors at each end. The VAS score is determined by measuring the distance from the left hand end of the line to the point the patient has marked. A VAS score <50 was defined as indicating “mild pain” and a VAS ≥50 was defined as indicating “severe pain”. As for brassiere cup size self-reported by each participant, A, B, and C, were defined as “small”, and D and E or more were defined as “large”. Student’s t-test, Spearman’s test, and the chi-square test were used for statistical analysis. Statistical significance was set at p < 0.05.
REFERENCES

[1] Health and Welfare Statistics Association. Annual Statistical Report of National Health Conditions 2010/2011; pp 72-3, (Japanese).

[2] Nakamura M, Nishiwaki Y, Ushida T, et al. Prevalence and characteristics of chronic musculoskeletal pain in Japan. J Orthop Sci 2011; 16: 424-32.

[3] Gonzalez F, Walton RL, Shafer B, et al. Reduction mammoplasty improves symptoms of macromastia. Plast Reconstr Surg 1993; 91(7): 1270-76.
Bruhlmann Y, Tschopp H. Breast reduction improves symptoms of macromastia and has a long-lasting effect. Ann Plast Surg 1998; 41(3): 240-5.

Wood K, Cameron M, Fitzgerald K. Breast size, bra fit and thoracic pain in young women: a correlational study. Chiropr Osteopat 2008; 16: 1.

Letterman G, Schurter M. The effects of mammary hypertrophy of the skeletal system. Ann Plast Surg 1980; 5(6): 425-31.

Netscher DT, Meade RA, Goodman CM, et al. Physical and psychological symptom among 88 volunteer subjects compared with patients seeking plastic surgery procedures to the breast. Plast Reconstr Surg 2000; 105(7): 2366-73.

Findikcioglu K, Findikcioglu F, Ozmen S, et al. The impact of breast size on the vertebral column: a radiologic study. Aesthetic Plast Surg 2007; 31(1): 23-7.

Foreman KB, Dibble LE, Droge J, et al. The impact of breast reduction surgery on low-back compressive forces and function in individuals with macromastia. Plast Reconstr Surg 2009; 124(5): 1393-9

Schnur PL, Schnur DP, Petty PM, et al. Reduction mammaplasty: an outcome study. Plast Reconstr Surg 1997; 100(4): 875-83.

Atterhem H, Holmner S, Janson PE. Reduction mammaplasty: symptoms, complications, and late results. A retrospective study on 242 patients. Scand J Plast Reconstr Surg Hand Surg 1998; 32(3): 281-6.

Ryan EL. Breast weight and industrial fatigue. Med J Aust 1987; 147(5): 261.