Cancer Incidence in Male Orthopaedic Surgeons

Thomas Charles Geiger¹, Loretta Chou², Antonia F Chen, Lisa K Cannada, Sara Van Nortwick³ ¹Orthopaedics, The Medical University of South Carolina, ²Stanford University, ³MUSC Orthopedics INTRODUCTION:

Determining the incidence of cancer within orthopaedics is of importance, as radiation exposure is an occupational hazard in this field. While previous studies have investigated the incidence of cancer within female orthopaedic surgeons, an evaluation of cancer incidence in male orthopaedic surgeons has never been performed. METHODS:

An IRB approved survey was distributed to 12 member organizations of the AAOS Board of Specialty Societies. Study data was collected via a ten-minute anonymous survey pertaining to basic demographic/life history, medical training, radiation exposure, medical history and occurrence of solid organ or hematopoietic cancer. Male trainees, practicing surgeons and retired surgeons were eligible. Data was aggregated and analyzed in Microsoft Excel. Cancer incidence statistics for the general population of the United States were obtained through SEER*Stat 8.4.3. RESULTS:

1,203 male orthopaedic surgeons responded to the survey. The mean reported age was 52.9±13 years (range 26-92 years), and male respondent subspecialties included joints (606), foot & ankle (180), pediatrics (144), shoulder/elbow (133), general (109), sports (105), trauma (90), hand (26), spine (26), and oncology (25). 121 males (10.1%) reported ever having a diagnosis of cancer other than basal cell or squamous cell cancer of the skin. Cancer etiologies included prostate (44), melanoma of the skin (29), non-Hodgkin lymphoma (7), urinary bladder (6), thyroid (4), lung and bronchus (4), colon and rectum (3), kidney and renal pelvis (2), pancreas (2), breast (1), and others (26). The mean age at diagnosis was 54.8±13.1 years. Out of 56 male orthopaedic surgeons who indicated a subspecialty of joints and a history of cancer, 22 (39.3%) were diagnosed with prostate cancer. Of the 121 male survey respondents who reported a cancer diagnosis, 64 (52.9%) indicated that they have never received training or education on the risks of radiation exposure. 61 (50.4%) of those who reported a diagnosis of cancer reported using standard fluoroscopy on a weekly basis, and 9 (7.4%) reported using no form of radiation protection.

DISCUSSION AND CONCLUSION:

This is the first study to date to report the occupational hazard of cancer in male orthopaedic surgeons. Radiation exposure is a documented risk factor for cancer. Over 50% of respondents indicated weekly radiation exposure. We found male orthopedic surgeons in our survey to have a cancer incidence of 10.1% and a prostate cancer incidence of 3.7%, with a noted increased occurrence in male total joint surgeons. The general U.S. male population aged 55-59 has a cancer incidence of 858.2 per 100,000 (0.86%), and the mean age at diagnosis was 54.8±13.1 years for this cohort of male orthopaedic surgeons. With the increase in radiation use during anterior total hips, this may be one contributing factor and further study warranted. With 7% of respondents indicating they do not use protection during fluoroscopy, it is critical to raise broad awareness of cancer incidence in orthopaedics, as this occupational hazard impacts orthopaedic surgeons of all specialties and genders. Further emphasis should be placed on educating orthopaedic surgeons on the risks of radiation exposure.