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CANCER INCIDENCE AND METOLACHLOR USE IN THE AGRICULTURAL HEALTH STUDY: AN UPDATE. Sharon R. Silver*, Steven J. Bertke, Cynthia J. Hines, Michael C. R. Alavanja, Jane A. Hoppin, Jay H. Lubin, Jennifer A. Rusiecki, Dale P. Sandler, Laura E. Beane Freeman (National Institute for Occupational Safety and Health)

Background: Metolachlor, a widely used herbicide, has been classified as a possible human carcinogen (Group C) by the U.S. Environmental Protection Agency based on an increase in liver neoplasms in female rats. Epidemiologic studies of the health effects of metolachlor have been limited. **Methods:** The Agricultural Health Study (AHS) is a prospective cohort study including licensed private and commercial pesticide applicators in Iowa and North Carolina enrolled 1993-7. In this update, we extended follow-up for cancer incidence through 2010 (NC) and 2011 (IA). We used Poisson regression to evaluate relations between two metrics of metolachlor use (lifetime days, intensity-weighted lifetime days) and cancer incidence. **Results:** Of the 49,616 applicators, 53% reported ever using metolachlor. We saw no association between metolachlor use and incidence of all cancers combined (n=5701 with a 5-year lag) or most site-specific cancers. However, for liver cancer, trends for both lifetime and intensity-weighted lifetime days of metolachor use were positive and statistically significant with an unexposed reference group; in analyses restricted to exposed workers, elevations observed at higher categories of use were not statistically significant. A similar pattern was observed for follicular-cell lymphoma, but no other lymphoma subtypes. **Discussion:** This update of pesticide applicators in the Agricultural Health Study is the first occupational epidemiology assessment to report positive associations between metolachlor use and liver cancer in humans and echoes observation of increased liver neoplasms in some animal studies. However, our findings for both liver cancer and follicular-cell lymphoma warrant further follow-up to better differentiate effects of metolachlor use from other factors.

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DO LONG WORKING HOURS INCREASE PERCEIVED MEDICAL ERRORS AND ATTENTIONAL FAILURES AMONG KOREAN INTERNS AND RESIDENTS? Ja Young Kim*, Hyoju Sung, Ji-Hwan, Kim, Hyemin Lee, Seung-Sup Kim(BK21PLUS Program in Embodiment: Health-Society Interaction, Department of Public Health Sciences, Graduate School of Korea University)

Objectives This study sought to examine the association between extreme long working hours and patient safety related outcomes among Korean interns/residents.**Methods** We conducted a cross-sectional survey of 1,821 Korean interns/residents to examine the association between working hours per week and patient safety related outcomes in 2014. Working hours per week were classified into 5 groups: less than 60, 60-79, 80-99, 100-119, 120 or more hours. Medical errors, near miss medical errors, and attentional failures were assessed by three questions: "Over the past 3 months, have you 1) actually made any major medical errors?, 2) nearly made any major medical errors?, 3) unintentionally fallen asleep at work?" Respondents could answer "Yes" or "No" for each question. Logistic regression was applied to examine the association after adjusting for potential confounders including the year of training program, specialty, and hospital size.**Results** Although no significant association was found in the analysis with medical errors, dose-response relationship was observed between long working hours and near miss medical errors and attentional failures. Compared to the interns/residents who are working less than 60 hours per week, the odds for near miss medical errors for those who are working 60-79, 80-99, 100-119, and 120 hours or more were 1.86 (95% CI: 1.26, 2.75), 3.46 (95% CI: 2.40, 4.98), 5.02 (95% CI: 3.44, 7.33), and 6.11 (95% CI: 4.25, 8.80), respectively. And the odds for attentional failures for those working 60-79, 80-99, 100 -119, and 120 hours or more were respectively 1.89 (95% CI: 1.30, 2.74), 2.80 (95% CI: 1.91, 4.11), 6.90 (95% CI: 4.21, 11.30), and 6.07 (95% CI: 3.72, 9.90). **Conclusion** This study found that Korean interns/residents are working extremely long hours and it is associated with higher risk of experiencing near miss medical errors and attentional failures, which can threaten patient safety.

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EXAMINATION OF GENERAL SURGERY RESIDENTS' RADIATION EXPOSURES, KNOWLEDGE, ATTITUDES, AND SAFETY PRACTICES. Hayden Smith*, Richard A. Sidwell, James P. Halsey, Matthew J. McFarlane (Iowa Methodist Medical Center, Des Moines, IA, United States; University of Iowa, Carver College of Medicnine, Iowa City, Iowa, United States)

INTRODUCTION: Ionizing radiation in medical imaging constitutes a risk to patients and medical professionals. Surgical residents engage in widely varying healthcare tasks involving radiation. There are no available data on surgical resident exposures or exposures by rotation type. Study objective was to investigate general surgery resident ionizing radiation exposures, knowledge, attitudes, and safety practices. **METHODS:** An observational study was conducted based on radiation film badge dosimeters. A survey was developed examining radiation knowledge, attitudes, and precautions. Study sample included residents who wore a badge for the previous year and completed study instrument. **RESULTS:** Fourteen surgical residents (100%) engaged in 168 rotations during the study year, primarily: General Surgery (n=103, 61%); Night Float (n=16, 10%); Trauma (n=15, 9%); and Vascular (n=13, 8%). Radiation exposures were greater than a null value during the majority of rotations, with no exposure above occupational thresholds. Certain rotations, namely Vascular and Trauma, had increased exposures. Residents also ranked these rotations as potentially risky for occupational exposures. When asked if protective efforts changed during higher risk rotations, responses revealed they Increased (64%) or Did Not Change (36%). A low Cronbach alpha (α=0.2634) demonstrated precaution use was not universal and had varied rationale. Percent of correct radiation knowledge questions was 62%, which was greater than chance ($p<0.0001$). A multilevel model predicting exposure had a significant multiplicative cross-level interaction term ($p< 0.0001$) between resident-level and rotation type.**CONCLUSIONS:** Study demonstrated detectable radiation exposures. Stochastic and dose-response effects of radiation exposures make any dose a concern. Attempts to lessen exposures are worthwhile, with study results identifying a need for greater safety precaution education and adherence.

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EXPERIENCE OF WORKPLACE VIOLENCE IS ASSOCIATED WITH DEPRESSIVE SYMPTOMS AMONG MEDICAL RESIDENTS IN SOUTH KOREA: 2014 KOREAN INTERN/RESIDENT SURVEY. Ji-Hwan Kim*, Ja Young Kim, Hyoju Sung, Yugyun Kim, Seung-Sup Kim BK21PLUS Program in Embodiment: Health-Society Interaction, Department of Public Health Sciences, Graduate School of Korea University)

Objective: This research sought to assess the prevalence of workplace violence and its perpetrators, and to examine the association between workplace violence and depressive symptoms outcomes among medical residents in South Korea. **Methods:** We conducted a cross-sectional survey, entitled 2014 Korean Intern/Resident Survey to understand working environment and health conditions among medical residents in South Korea. This research sought to examine how experience of workplace violence was associated with depressive symptoms among 1,215 medical residents in South Korea. We assessed experience of three different workplace violence (i.e. physical violence, verbal assault, sexual harassment) during the past 12 months and its perpetrators (i.e. faculty members, senior residents/fellow, resident in same training year, patient or caretaker). Depression during the past one week was assessed using a 10-question version of the Center for Epidemiologic Studies Depression Scale questionnaire. **Results:** High prevalence of workplace violence was observed: 43.9% for verbal assaults, 11.4% for physical violence, and 5.6% for sexual harassment. After adjusting for potential confounders including working hour, medical specialty, training year, and hospital size, depression was associated with experience of physical violence (PR: 1.30, 95% CI: 1.06-1.59), verbal assault (PR: 1.38, 95% CI: 1.16-1.64), and sexual harassment (PR: 1.63, 95% CI: 1.29-2.06). Compared to those who never experienced workplace violence, prevalence ratio for having depressive symptoms for respondents who experienced one, two, and three workplace violence were 1.33 (95% CI: 1.10-1.61), 1.58 (95% CI: 1.26-1.98), and 2.02 (95% CI: 1.43-2.86), respectively. **Conclusions:** This study found that medical residents are frequently exposed to workplace violence and that their experience of workplace violence is associated with depression.