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Gulf Oil Spill and Associated Health Risks

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MedicalResearch.com Interview with:
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MedicalResearch: What are the main findings of the study?

Dr. D'Andrea: Crude oil spills affect the human health through their exposure to the inherent hazardous chemicals such as para-phenols and volatile benzene.

Human exposure to crude oil spills is associated with multiple adverse health effects including hematopoietic, hepatic, renal, and pulmonary abnormalities. In this study, we assessed the hematological and liver function indices among the subjects participated in the Gulf oil spill clean-up operations along the coast of Louisiana. The findings were compared with the standardized normal range reference values. We found that over 77% of subjects had WBC counts in the mid range (6 – 10X 10^3 per mL) while none of the subjects had upper limit of the normal range (11 X 10^3 per mL). Similar pattern was seen in the platelet counts and BUN levels among the oil spill exposed subjects. Conversely, over 70% of the subjects had creatinine levels toward upper limit of the normal and 23% of subjects had creatinine levels above the upper limit of the normal range (> 1.3 mg per dL). Similarly, hemoglobin and hematocrit levels were toward the upper limit of the normal in more than two-third of the subjects. Aspartate amino transferase and alanine amino transferase levels above the upper limit of normal range (> 40 IU per L) were seen in 15% and 31% of subjects, respectively. Over 80% of subjects had urinary phenol levels more than detectable levels (2 mg per L).

MedicalResearch: Were any of the findings unexpected?

Dr. D'Andrea: Despite the considerable number of accidental oil spills that occurred around the world, studies investigating their potential effects on human health are lacking. Especially, the effects of oil spill exposure on the hematological and liver function have not been investigated previously. For the first time, we reported altered blood profiles and hepatic function in subjects participating in the clean-up operation of the Gulf oil spill.

MedicalResearch: What should clinicians and patients take away from your report?

Dr. D'Andrea: The findings of our study indicate that people who participated in oil spill clean-up activities are at risk of developing health problems, specifically, hepatic or hematological abnormalities.

MedicalResearch: What recommendations do you have for future research as a result of this study?

Dr. D'Andrea: The effect of crude oil spill exposure on hematologic, cardiac, hepatic, renal, and other vital organ functions is not been well established. We have yet to learn and understand the extent of the potential human health effects from the oil spill exposure. The current published studies clearly support the need for further assessment of the potential short and long-term repercussions in human populations exposed to oil spills.

Citation:

D'Andrea, MA, Reddy, GK: Health Risks Associated with Crude Oil Spill Exposure. Am J Med. 2014 May 21 [Epub ahead of print]..