Sesión Plenaria/Plenary session: 1

Mesa redonda: Papel de la epidemiología en el estudio de los efectos sobre la salud del vertido del Prestige

Round table: Role of epidemiology in the study of health effects derived from the Prestige oil spill

Miércoles 1 de Octubre/Wednesday 1, October
17:00:00 a/to 19:00:00

003

RISK ASSESSMENT IN THE CASE OF THE ERIKA ACCIDENT: HEALTH RISK ASSESSMENT AFTER DECONTAMINATION OF THE BEACHES

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Whatever the tanker wreck, cleaning the beaches involved a considerable work which in any case could not be perfect. This raised the question of the short and long-term health risks for the future bathers related to the toxicity of the remaining oil PAHs. A risk assessment was conducted in order to help health authorities to define criteria for the opening of the beaches to holidaymakers. The risk assessment was only conducted for PAHs, resulting from previous investigations. Cancer and reproductive effects were estimated. The most conservative toxicological values were selected for computing risks. The 16 PAHs selected by the US-EPA were quantified in water, sand and rocks of 36 beaches which represent a sample of the most frequently encountered topographic and beach usage situations; 7 'control' beaches, unspoiled by ERIKA, were also investigated. Five exposure scenarios were contemplated concerning a child between 2 and 4 years old accidentally ingesting a small ball of fuel or daily exposed at the beach throughout his holidays, an adult (including a pregnant woman) spending his/her holidays on the coast, or working on the beach, or practicing water sports. The sand and water, after decontamination, were slightly polluted with values similar to those found in the controlled beaches. To the contrary, the rocky areas in some places were still highly polluted. No lethal risk was found for a young child who would accidentally ingest a small ball of fuel. The life-long excess risks for skin cancer and for all other cancers were about 10-5 in scenarios including a contact with the polluted rocks, and greater than in all other cases. The hazard quotient for teratogenic effects was very small, except in scenarios where pregnant women would walk among rocks with high pollution levels. Exposure was mainly associated with polluted water among children and with spoiled rocks for adults. The main uncertainties are the prediction of long-term risks following a short term exposure. This study showed that beaches where pollution was no longer visible after decontamination did not entail any significant health risks. Based on this conclusion, health authorities determined visual criteria to define the opening of remediated beaches if there are no longer contaminated by regular arrivals of fuel: walking with white shoes on the beach and no more fuel sticks on it; no irisation on the sea surface; no visible fuel on rocks. Although contamination conditions and the depollution work differ, these criteria were used again for the Prestige wreckage.

002

THE STUDY AND INTERVENTIONS CARRIED OUT AFTER THE ERIKA ACCIDENT

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The Erika oil spill (12 December 1999) soiled 400 kilometres of the French Atlantic coast. The oil product transported contained aromatic (benzene and derived products), and polyaromatic (PAH) hydrocarbons. Health authorities requested an evaluation of the short-term and long-term health risks for people involved in cleaning operations in order to decide on immediate preventive actions and to define long-term care and surveillance of cleaners.

Short-term health impact: In March 2000, a questionnaire was sent to 3669 volunteers and professionals who had been involved in the cleaning of 12 districts. The objectives consisted in describing the health problems that appeared during and a few days after the decontamination works, identifying risk factors and evaluating prevention criteria. The response rate was 43%. Among respondents, 7.5% declared to have been injured, 52.7% declared to have a health problem, mainly low back pains, headaches and skin irritation. Main risk factors were length and multiplicity of activities, female gender, osteoarticular precedents, skin contact with oil, bad information on the precautions to be taken, and above all discomfort due to smell. A further phone inquiry among a random sample of volunteers confirmed similar results with non-respondents. These results show that even though the observed effects are not too severe, prevention measures have to be improved.

Long-term health impact: Long-term risks were assessed by INERIS and RIVM. Analysed pollutants were PAHs and some COV (benzene, toluene, ethyl benzene, etc.). Analysed effects were general cancers, skin cancers, and alteration of embryo foetal development. Among the various analysed situations of exposure, only bird cleaning with bare hands led to an excess risk of skin cancer. In addition, the assessments could not exclude an embryo foetal risk for pregnant women exposed to PAH. According to this analysis, the InVS made recommendations on the relevance of a long-term surveillance of exposed populations. The expected health impact under maximal hypotheses of exposure (0.2 cases of skin cancer for 90 expected cases, regardless of oil exposure) could not justify the implementation of a specific programme for the epidemiological or medical surveillance of cleaners.

What lessons for similar episodes?

Knowledge built after the Erika accident was used for the Prestige. During this new disaster, the expected effects being similar, efforts were focused on information and prevention. Instructions were immediately given to restrict cleaning works to listed, supervised, well-equipped and well-informed personnel. In addition, serious or non-expected short term effects were monitored as an alert system.

004

EPIDEMIOLOGICAL STUDIES PROPOSED BY THE GROUP OF EXPERTS CALLED BY THE SPANISH MINISTRY OF HEALTH

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On 25 November 2002, an accident involving the tanker Prestige resulted in the release of over 30.000 tons of fuel oil into the sea that, over a period of several months, have been reaching the coast of Galizia and, to a lesser extent, all the sea-shore of Northern Spain. On 15 January 2003, the Ministry of Health convened a group of experts to design epidemiologic investigations to examine the medium- and long- term health effects of the fuel oil spill on the general population living near the cost affected by the spillage, and on the working population involved in the recovery and clean-up of the fuel oil. The group of experts, comprised of epidemiologists and environmentalists, selected from public health administrations (Ministry of Health and Health Authorities of the regions affected by the spillage) and academic institutions, proposed consecutively the following actions: *a)* Elaboration of a registry of workers involved in the recovery and clean-up of the fuel oil (as to 19 February 2003), *b)* A program to measure the level of exposure to components of the fuel oil spill among the above-mentioned (as to 19 February 2003). Includes the elaboration of a job-exposure matrix from epidemiologic interview-surveys and measurement of biomarkers of exposure in samples of five categories of workers: fishermen and sellfish hunters, contract workers, military, non-contract voluntary workers, and those cleaning fuel oil from water birds, *c)* A program of studies to examine the impact of the spillage on mental health over a period of 3 years after accident of the Prestige, both in general population and in subjects working in fuel oil recovery and clean-up (as of 10 April 2003). Includes a population-based follow-up study in residents of municipalities exposed and non-exposed to the spillage in Galizia. Outcome variables are anxiety, depression, general mental health disorders, and difficulties in activities of daily-living, *d)* A program of studies to assess the medium- and long-term impact of the spillage on reproductive health and morbi-mortality from cancers in the general population (as of 10 April 2003). Includes monitoring of the ratio of males/females births, abortions and stillbirths, newborns with low birth-weight and newborns with major congenital malformations, over a 2-year period before and after the spillage in exposed and non-exposed municipalities. It also includes a prospective cohort study of workers registered in action a) (please, see above) with outcomes obtained through record-linkage with population-base tumour-registries, where possible, and official mortality data-bases. On 10 July 2003, the registry of workers (action a) has been completed, though continues incorporating data from workers still participating in the fuel-oil clean-up. The program of measurement of exposure to fuel-oil among workers has been fully implemented. It is expected, that collection of data on mental health disorders will begin in September or October 2003. On behalf of the group of experts called by the Spanish Ministry of Health: J.L. Aboal, R. Fernández-Patier, J. Grimalt, A. Guzman, J.M. Martín-Moreno, F. Marqués, I. Osaba, M. Pollán, F. Rodríguez-Artalejo, J. Sunyer, L. Viloria.

005

THE INTERVENTIONS CARRIED OUT BY THE AUTONOMOUS COMMUNITY OF GALICIA AFTER THE PRESTIGE ACCIDENT

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Few days after the accident (13 November 2002) it was evident that Galicia was suffering a big problem. Immediately, the public health authority set up a workforce to evaluate the possible consequences on the population health. We distinguish between three mains fields of actuation: prevention, provision of medical assistance and food security.

Prevention: first of all we made a quick risk evaluation browsing the literature and asking for the fuel composition transported by the Prestige that was very similar of the Erika. With that, we identified the population on risk (people working in cleaning operations) and the possible health problems we can expect. Then, we elaborated and disseminated specific recommendations for them. Also, we designed a specific surveillance system to identified oil-related health problems between the population working with the oil or living in the coast areas affected (SISF). From 29 November to 28 April the SISF identified 1434 persons, 917 males and 513 females. The reasons to consult were more o less the expected, with eye and throat symptoms accounting for the 26% of all consults. Other problems were headaches (14%), trauma (10%), breath difficulty (9,6%) and nauseas and vomiting (9,4%). Low back pain and skin symptoms account for less of 6,5% each, showing a low frequency. The SISF did not identify any special cluster of pathology linked to the cleaning activities out of previously described. At least 150.000 persons participated in the cleaning operations, allocated in many different lodgings. It was made an effort to control the hygienic conditions of all this places, and also those of the kitchen facilities.

Medical assistance: the 061 and the Health Galician Service (Sergas) establish an operational plan to reinforce the health services along the coast.

Food Security: The following steps were taken: *1)* closing the fishing areas and to reinforce surveillance and control of sea products; *2)* to establish criteria to refuse this products: *a)* sensorial (visual, smell or taste criteria); *b)* analytic: there are no standard. In accordance with the Spanish Agency of Food Security (AESA) and other experts, the levels applied by the French's after the Erika were accepted; *3)* a sampling plan to investigate commercialized product; *4)* a sampling plan with fish authority; *5)* to set up the methods to detect HAP in a laboratory. All the samples analyzed in commercialized product and less than five samples among the analysis carry on by the fishing authority were below de reference levels.