

Sesión Temática/Thematic sessions

Cohortes de recién nacidos en Europa

Birth cohorts in Europe

Viernes 3 de Octubre / Friday 3, October
15:00:00 a/to 16:30:00

BIRTH COHORTS IN EUROPE

Jorn Olsen*, Manolis Kogevinas**

**Center For Epidemiologisk, Grundforskning, Aarhus Universitet, Aarhus C, Denmark,
**Unidad de Investigación Respiratoria y Ambiental, Instituto Municipal de Investigación Médica, Barcelona, España.*

Occurrences during the prenatal and postnatal period have large implications for children's health and also determine morbidity occurring later in life including asthma and allergy, cancer, mental illnesses, delayed neurodevelopment, cardiovascular diseases. Recent evidence indicates that gene-environment interactions are important in diseases such as Attention-Deficit/Hyperactivity Disorder (ADHD) and autism. Exposures at early life are important because children are more susceptible than adults and because critical periods of exposure in early life condition later health effects. Recent observational birth cohorts that incorporate both questionnaire data and collection of biological samples have enrolled approximately 180,000 newborns in Belgium, Denmark, the Faroe islands, Finland, France, Germany, Italy, Norway, Spain, Sweden, the Netherlands, the UK. It is expected that in the next 2-3 years 290,000 newborns will be enrolled in ongoing studies. This information has originated from an initial coordination process among several research groups in EU countries but it is possible that additional cohorts exist. These estimates do not include intervention studies many of which provide data directly comparable to observational studies that focus on environmental exposures and nutrition. Most studies evaluate a wide spectrum of both exposures and effects. Existing studies focus on environmental exposures (e.g. pesticides, water contaminants, organochlorinated compounds, indoor and outdoor air pollution, metals (Pb, Hg), endocrine disruptors, environmental tobacco smoke), nutrition in pregnancy focusing on measures of maternal diet such as antioxidants during pregnancy, immunological factors such as food allergies, psychological factors, lifestyle (e.g. smoking, alcohol), obesity, health services related factors such as vaccines and use of medicaments during pregnancy, occupation, and genetic factors and gene-environment interactions, particularly regarding nutrition. The spectrum of outcomes measured is wide including for example IUGR, reproductive outcomes such as birth weight, birth defects, allergies and asthma, neurobehavioral development, diabetes.

Several studies in children are conducted in EU countries but research is uncoordinated. Individual areas of expertise do exist but the problem is in integrating them. Progress in this extremely inspiring line of research of extraordinary public health importance can only come from a close collaboration at a European level having enough power to evaluate hypotheses and sufficient know-how in a wide spectrum of exposures and diseases. Research has advanced rapidly in this field and unless the EU embarks on a very ambitious program now, an important opportunity will be lost.

316

317

THE NORWEGIAN MOTHER AND CHILD COHORT STUDY

Wenche Nystad

Division for epidemiology, Norwegian Institute of Public Health, Norway

Background: Among 100.000 confirmed pregnancies, it has been estimated that 1.000 will end in stillbirth, 400 will die, and several complex diseases will affect the children, 900 will be diagnosed with cancer and 300 with heart disease before age 30 years.

Objective: To perform research along several pathways covering most of the new hypothesis to date to calculate the association between different exposures and several endpoints.

Subjects and methods: 100.000 pregnant women will be recruited between 1999 and 2006. The women are included through attending the routine ultrasound examination in the 17th week of pregnancy. They fill in three questionnaires during the pregnancy and three during the first 5 years after birth. The father fills in one questionnaire. Blood samples are taken: a) from the mother and father in the 17th week of pregnancy, b) at birth from the umbilical cord and a second sample from the mother. Links to health registries or exposure registries will enable the generation of new data sets including the main project, and more than 50 subprojects, which have a cohort design or a nested case-control design. No intervention will be undertaken.

Results: The presentation will include the recruitment procedures, participation rates, selection problems, and some preliminary results.

AN OVERVIEW OF OBSERVATIONAL EPIDEMIOLOGICAL DATABASES

Sjurdur F Olsen

Maternal Nutrition Group, Danish Epidemiology Science Centre, Denmark.

Recent research has produced evidence that the diet consumed in, or shortly before, pregnancy can potentially lead to maldevelopment and diseases, which may become apparent at any time from the embryonic stage till old age.

Setting up studies to examine such relationships is demanding and expensive. Moreover, when done in a prospective, longitudinal setting, it is at least as time consuming as it takes to wait until the studied health outcome has appeared. It is therefore mandatory that we do not miss any potential opportunity to utilise already established data collections for this purpose.

The aim of the present survey was to identify and describe databases in Europe where information on maternal diet has been recorded, and which can potentially create basis for longitudinal research to study Effects of such exposures on offspring development and diseases in a life long perspective.

In a preliminary survey we identified around 25 such studies. They varied widely with respect to age of cohort (the oldest were more than 50 years), number of pregnant women included (the largest comprised around 100,000), and the emphasis and the method of the diet assessment (from a few frequency questions on specific food items to extensive assessments of general diet). The work was supported by The Nordic Longitudinal Epidemiology Research Programme (Grant 00726) of The Nordic Council of Ministers. SFO is supported by the March of Dimes Birth Defects Foundation.

319

318

ENVIRONMENT AND CHILDHOOD: THE INMA SPANISH STUDY

Jordi Sunyer Deu

Unidad de Investigación Respiratoria y Ambiental, Instituto Municipal de Investigación Médica, España.

The physical, social and intellectual development of children from conception to the end of adolescence requires an environment which is both protected and protective of their health.

A growing number of diseases in children are linked to the unsafe environments. Prenatal and early life exposures including diet are associated with child health and human development and predispose to late adult effects. Children are more vulnerable than adults to environmental exposures. Children are not little adults - since they are still growing and their immune system and detoxification mechanisms are not fully developed, they are especially vulnerable to chemical, physical and biological hazards in air, water and soil.

The project INfancia y Medio Ambiente (INMA) will follow up a life-stage approach and prospectively enroll a population sample of 5.000 pregnant mothers and newborns. Existing and new cohorts of pregnant women will be incorporated from seven different Spanish regions. The INMA project aims to transfer knowledge and methodology between the different Spanish groups that are studying environment and health; to describe the degree of individual contamination to persistent organic pollutants and metals and the burden of exposure during pregnancy and early infancy; to evaluate the impact of the exposure to different contaminants and both the protective and negative factors of diet on infants' growth and development; and to contrast the hypothesis generated from other ongoing cohorts.

Environmental, nutrition, biological and psychosocial exposures at the prenatal and postnatal periods will be evaluated. Outcomes include prenatal and birth health events, neurodevelopment, behavioural functioning, immunity and hormonal disruption.

OBSERVATIONAL BIRTH COHORTS IN THE EUROPEAN UNION: THE NEED FOR STRONG COLLABORATION

Manolis Kogevinas

Unidad de Investigación Respiratoria y Ambiental, Instituto Municipal de Investigación Médica, Barcelona, España.

Occurrences during the prenatal and postnatal period have large implications for children's health and also determine morbidity occurring later in life including asthma and allergy, cancer, mental illnesses, delayed neurodevelopment, cardiovascular diseases. Recent evidence indicates that gene-environment interactions are important in diseases such as Attention-Deficit/Hyperactivity Disorder (ADHD) and autism. Exposures at early life are important because children are more susceptible than adults and because critical periods of exposure in early life condition later health effects.

Recent observational birth cohorts that incorporate both questionnaire data and collection of biological samples have enrolled approximately 180.000 newborns in Belgium, Denmark, the Faroe islands, Finland, France, Germany, Italy, Norway, Spain, Sweden, the Netherlands, the UK. It is expected that in the next 2-3 years 290,000 newborns will be enrolled in ongoing studies. This information has originated from an initial coordination process among several research groups in EU countries but it is possible that additional cohorts exist. These estimates do not include intervention studies many of which provide data directly comparable to observational studies that focus on environmental exposures and nutrition. Most studies evaluate a wide spectrum of both exposures and effects. Existing studies focus on environmental exposures (e.g. pesticides, water contaminants, organochlorinated compounds, indoor and outdoor air pollution, metals (Pb, Hg), endocrine disruptors, environmental tobacco smoke), nutrition in pregnancy focusing on measures of maternal diet such as antioxidants during pregnancy, immunological factors such as food allergies, psychological factors, lifestyle (e.g. smoking, alcohol), obesity, health services related factors such as vaccines and use of medicaments during pregnancy, occupation, and genetic factors and gene-environment interactions, particularly regarding nutrition. The spectrum of outcomes measured is wide including for example IUGR, reproductive outcomes such as birth weight, birth defects, allergies and asthma, neurobehavioral development, diabetes.

Several studies in children are conducted in EU countries but research is uncoordinated. Individual areas of expertise do exist but the problem is in integrating them. Progress in this extremely inspiring line of research of extraordinary public health importance can only come from a close collaboration at a European level having enough power to evaluate hypotheses and sufficient know-how in a wide spectrum of exposures and diseases. Research has advanced rapidly in this field and unless the EU embarks on a very ambitious program now, an important opportunity will be lost.

320