Phthalates and bisphenol A biomonitoring in Italian mother-child pairs: link between exposure and juvenile diseases

(LIFE13 ENV/IT/000482)

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Luca Busani
Istituto Superiore di Sanità
Background

✓ Phthalates (diethylhexyl phthalate [DEHP] in particular) and Bisphenol A (BPA), extensively used as plasticizers, are non-persistent environmental contaminants whose well documented presence in humans raises concern since they act as endocrine disruptors (EDs), thus potentially affecting human health.

✓ EDs exposure during childhood deserves special attention since this represents a crucial susceptible phase of development.

✓ Recent studies have associated the exposure to DEHP and BPA to endocrine related multi-factorial diseases in children, in particular precocious puberty and obesity.

✓ No national data exist up to now on levels of DEHP, and its metabolites (MEHP and secondary metabolites) and BPA in toddlers, children and adolescents nor on associations between exposure and such diseases.

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Main Objectives

Association between exposure and health

- Evaluate internal levels of DEHP and its metabolites and BPA in children and adolescents and setting reference ranges for DEHP and BPA exposure in Italian children and women
- Evaluate environmental factors, food habits and lifestyles as sources of EDs exposure
- Investigate the relationship between DEHP’s metabolites and BPA internal levels and children diseases
- Integrate internal EDs levels with biomarkers of effect related to such diseases, as proxy of potential adverse outcomes
- Evaluate cause-effects due to BPA/DEHP exposure in experimental conditions by a juvenile toxicity study in rodents, as innovative animal model for childhood diseases
- Improve risk assessment integrating human and experimental data and to identify effective measures to reduce the exposure
- Networking with projects and institutions in order to compare results and implement the EU database on DEHP’s metabolites and BPA
- Create a specimen biobank (https://www.ifc.cnr.it/index.php/it/le-aree-di-competenza/la-biomedicina/bio-banca)
- Contribute to the knowledge on biomonitoring as tool for risk assessment (EFSA)
Division of Italy in macro areas (North, Centre, South) and each macro area into urban and rural areas according to urbanization degree and human density.

Involvement and training of pediatricians from the National Health System.

Enrollment of 2160 mother-child/adolescent pairs, by age and gender:
- questionnaire on lifestyle/food habits; food diary two days before urine sampling;
- collection of urine samples for analysis of the levels of BPA and DEHP metabolites (MEHP, MEHHP, MEOHP).
Case-control studies

i) idiopathic premature thelarche: enrollment of 30 girls aged 2-7 years

ii) idiopathic central precocious puberty: enrollment of 30 girls aged 2-7 years

iii) idiopathic childhood obesity: enrollment of 30 boys and 30 girls aged 6-10 years.

Age and gender paired controls

• BPA and DEHP/DEHP metabolites levels in urine
• Relevant toxicological biomarkers (hormones, lipid and glucose metabolism, liver and thyroid function) in blood
Juvenile rodent study

(corresponding to the same life stages of children in biomonitoring study)

- Rats (10 rats/sex/group 12 treatment groups) exposed through the diet for 28 days, from weaning (day 23) until sexual maturity (approx. day 60), to BPA and DEHP alone and/or in mixtures
- Exposure doses comparable to the levels recorded in children population.
- Thyroid and reproductive biomarkers measured in serum.
- Histopathology of spleen, uterus, ovaries, testes, liver, pancreas, thyroid and adrenal glands
- Gene expression of hypothalamic-pituitary-gonadal axis
Primo Workshop LIFE-PERSUADED - 17/12/2013, Roma

Il workshop ha lo scopo di presentare l’attività del primo anno di progetto riguardante gli strumenti di studio di cui si è detto (es. questionario mirato ad esposizione a BPA e Lead), i dati iniziali e le prime attività di networking, con particolare risalto alla ricaduta dei risultati d’interesse per gli stakeholder.

Il Workshop si svolgerà il 17 dicembre p.m. a Roma presso l’Istituto Superiore di Sanità.

I destinatari e numero massimo partecipanti Il workshop è indicizzato a pediatri, medici, biologi, stakeholders che sono coinvolti nel progetto LIFE-PERSUADED e a tutti coloro che le attività sono benfatte dalla conoscenza di tali dati.

Destinatari e numero massimo partecipanti Saranno ammessi un massimo di 80 partecipanti. La...

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Pagina Facebook: Life-Persuaded
Newsletter in italiano

http://www.iss.it/lifp
Progetto Europeo LIFE PERSUADED

Preliminary and biophenol levels in Italian mother-child pairs: link between exposure and juvenile diabetes

Networking

Lista delle attività di Networking - Action E.2

LIFE PERSUADED NETWORKING

11:30-11:45
L’informazione dei consumatori su inalatori: M. Sali
11:45-12:00
Il punto di vista della Società Italiana di endocrinologia e diabetologia pediatrica: Stefano Contartesi (INSP)
12:00-12:15
Il punto di vista della società italiana per l’obesità e la diabete: Paolo Brancaccio (SIO)
Raffaele Succi (SIO)

LIFE PERSUADED: risultati

12:15-12:35
Strumenti per il biomonitoraggio: Luca Busani (ISL)
12:35-12:55
Rilevanza dello studio di biomonitoraggio: il punto di vista dei pediatri e della ricaduta sulla popolazione: Giacomo Toffoli (ADP); Enrica Fabbini (INSP Marche)
12:55-13:10
Distribuzione dei risultati preliminari del biomonitoraggio: Amalia Gandolfo (FC-CNR)

13:15-14:00
Pausa pranzo
14:00-14:20
Studi pana�ionale per invenzione

LIFE PERSUADED: networking

14:40-15:05
Paola Colli
15:05-15:10
Il progetto BONE-LIFE, Cross-Mediterranean Environment and Health Network - Gemma Calamandrei (ISL)
15:10-15:20
Il progetto SOEONGA, G. Giordano
15:20-15:30
Il progetto MAPEC-LIFE, Monitoring air pollution effects on children for supporting Public Health Policy - Amaliuia Carducci (Università di Pisa)
15:40-15:55
BBROPL, Polish Mother and Child cohort study - Kinga Palaska (National Institute of Occupational Medicine)
15:55-16:10
Il progetto HEALS, Health and Environment-wide Associations based on large population surveys - Kinga Palaska (National Institute of Occupational Medicine) e Gemma Calamandrei (ISL)
16:10-16:30
Discussione

Contatti

Facebook: Life-Persuaded
**Project Coordinator:** Dr. Cinzia La Rocca Istituto Superiore di Sanità (ISS), Rome
Francesca Baldi, Luca Busani, Francesca Romana Mancini, Francesca Maranghi, Laura Narciso, Sabrina Tait, Roberta Tassinari, Veronica Ruspi, Andrea Martinelli, Antonio Di Virgilio, Mauro Valeri

**PARTNERS**
National Research Council - Institute of Clinical Physiology, (IFC-CNR), Pisa,
Dr. Amalia Gastaldelli
Emma Buzzigoli, Fabrizia Carli, Demetrio Ciociaro, Raffaele Conte, Melania Gaggini, Anna Paola Pala, Andrea Raffaelli, Chiara Saponaro

Bambino Gesù Children's Hospital (OPBG), “Tor Vergata” University Rome
Dr. Stefano Cianfarani
Giorgia Bottaro, Paola Cambiaso, Annalisa Deodati, Barbara Baldini Ferroli, Daniela Germani, Romana Marini, Giuseppe Scirè, Gian Luigi Spadoni

with the collaboration of pediatrician network:
Associazione Culturale Pediatri (ACP, Pediatrics Association)

FIMP - Federazione Italiana Medici Pediatri Marche
Thank you for the attention

Contact:
Cinzia La Rocca: cinzia.larocca@iss.it

http://www.iss.it/lifp

info.persuaded@iss.it