Risk exposure to BPA in a Sicilian population

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Background
Scientific concerns about exposure to Bisphenol A (BPA) have risen in the last few years. Recent studies have associated prenatal and neonatal exposure to BPA with early onset of sexual maturation, reproductive and development disorders. BPA is an endocrine disruptor and cardiovascular, renal and diabetic diseases are strongly associated with the presence of urinary BPA. Both low and high single oral doses of BPA are well absorbed and undergo complete first-pass metabolism in the liver to BPA-glucuronide (BPA-glu) as major metabolite, which is rapidly excreted in the urine.
Here we present preliminary results on 61 volunteers of 18-66 years old recruited from the province of Catania (Italy) to evaluate urinary exposure to BPA and his major metabolite.
Methods
Free BPA and BPA-glu were detected by UPLC-ESI-TQD Xevo (Waters) using a ACQUITY® UPLC HSS C18 SB (1.8μm - 2,1 x 50 mm) column. Statistical analysis was carried out by SPSS 20.0 software.
Results
The results showed urinary BPA concentrations of 0.966 and 21.8 ng/mL respectively for free-BPA and BPA-glu. No significant differences were highlighted between sex and age. Conversely there is an high consumption of drinking water from plastic bottles, as declared by the 82% of subjects recruited even if not significant differences in concentrations were revealed among groups.
Our results are substantially lower than results obtained from cohort studies in the US population on urinary BPA, in which a mean value of 1.79 ng/ml and 2.49 ng/ml were found.
Conclusions
In Italy the major risk factor for BPA exposure is the drinking bottle water being Italy the European country with the highest per capita consumption of bottled water, and the second in the world. High adherence to the Mediterranean diet could have a protective effect against BPA migrating from food packaging and microwave containers. The recruitment of subjects for this research is still ongoing for more accurate and future evaluations.

Key messages:

- preliminary study results from Catania (Italy) to evaluate urinary exposure to BPA and his major metabolite.
- High adherence to the Mediterranean diet could have a protective effect against BPA.