Environmental pollution is a major global problem for human health. This problem is very interesting in Campania region, because of the illegal practices of waste disposal and the spill of waste products of the industries in the rivers.

The purpose of this study was to investigate the possible correlation between pollution and exposure of pregnant women, focusing our attention on the role of barrier that placenta play.

The placenta acts as a filter reducing the passage of harmful substances, protecting the embryo and then the fetus from exposure to pollutants. The placental barrier is not completely impervious to the passage of harmful substances; indeed, HMs were detected not only in placental tissues, but also in amniotic fluid and umbilical cord blood.

We hypothesized to compare the different concentrations of heavy metals in placentas belonging to the following groups:

1) first group: full-term pregnancy with fetus in apparent good health
2) second group: voluntary interruption of pregnancy due to a fetal malformation.

We analyzed 20 patients including 10 of first group and 10 of second.

Laboratory analysis showed a lower concentration of HMs in placentas belonging to the second group, probably due to the inability of the placenta to act as a filter. A greater exposure of the embryo, already in the first weeks of pregnancy, may be correlated to infant health consequences, like developmental, neurological, or endocrine disorders. Further studies are needed to expand knowledge on the developmental effects of most HMs in the human fetal-placental unit.