Late reproduction at lower risk in Sardinia island: a case of reproductive longevity?

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*Summary* - Population of Sardinia Island is characterized by geographical and historical isolation, a deep-rooted tendency to postpone childbearing, and a demographic and genetic structure largely different from that of continental Italy and other European countries. Based on such differences we investigated whether the risk of adverse pregnancy outcome associated with late reproduction was different between the Sardinian population and two mainland areas (North+Centre and South+Sicily), representative of different Italian socio-economic contexts. In particular we suggest that parents, who show aptitude to late childbearing associated with a reduced risk of adverse pregnancy outcome, enjoy “reproductive longevity”. Data set come from the National Institute of Statistics and concern all 1990-98 Italian birth records (n=4,830,742). We considered three types of adverse pregnancy outcome: i) stillbirths of the total births, ii) very preterm births (<32 gestation weeks) of the live births, iii) very low birthweight births (<1.5 Kg) of the live births after exclusion of very preterm births. Using logistic regression models we investigated whether the risk of adverse pregnancy outcome associated with maternal or paternal ageing followed differing trends between areas. Moreover we evaluated the Odds Ratio of the three types of adverse outcome as a function of maternal and paternal age and education, and delivery rank. We found that in the three areas the risks increase with parental ageing, but in Sardinia the increase is less rapid than in the mainland. In particular with respect to South+Sicily, in Sardinian mothers ≥35 years and fathers ≥40 years the OR is 25% lower for stillbirth and preterm birth, and 19% lower for low birthweight. We suggest that the aptitude to late and successful childbearing may be a peculiar trait of the Sardinian population, indicative of “reproductive longevity”. The possibility of identifying populations where a relevant proportion of mothers show the character might promote case-control studies focused on the possible determinants and measures of prevention and/or protection against the adverse effect of late reproduction.

*Keywords* - Late maternity, Parental age and risk at birth, Reproductive behaviour, Sardinian population, Adverse pregnancy outcome.

*Introduction* - Late childbearing is a common phenomenon in the Western countries and its negative effect on fertility and chance of delivering a healthy child has been widely reported. The tendency, due to subfertility conditions or cultural and/or socio-economic choices, is particularly alarming in the populations characterized by low fertility rates, as the Italian one.

Among the biological factors, which influence the reproductive success, parental fertility and offspring survival have been recognized to have genetic components (Pettay *et al*., 2005), in addition to the biological and environmental ones. At population level, peculiar socio-economic and cultural contexts combined with isolation conditions may lead to local differentiation in both the fertility and reproductive success. In particular we suggest that parents who