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Progesterone receptor (PGR) gene polymorphism is associated with susceptibility to preterm birth

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Background: Preterm Birth (PTB) is the major cause of death in newborn and the second major cause of death in children less than 5 years old worldwide. Genetic polymorphism has been implicated as a factor for the occurrence of preterm birth. The aim of this study is to evaluate whether polymorphism in the Progesterone Receptor (PGR) is associated with susceptibility to preterm birth.

Method: A total of 135 women with preterm and 532 women with term deliveries were genotyped for PGR gene polymorphisms (rs660149, rs471767, rs10895068) using Sequenom MassARRAY platform.

Result: The G allele of PGR rs660149 polymorphism was significantly associated with susceptibility to PTB in Malay women. The odds of G allele occurring among Malay women with preterm delivery was twice that of Malay women with term delivery (OR 2.3, 95% CI (1.2–4.5, P=0.011). Alternatively, no significant association was observed between PGR rs660149 polymorphisms and susceptibility to PTB in Chinese and Indian women.

Conclusion: This study shows that variability in the occurrence of PTB across ethnicities in Malaysia is partly due to differences in genetic background. We, therefore, suggest that in addition to life style and environmental factors, genetic factor should be greatly considered in this population. Prior information on the genetic composition of women may help in the identification and management of women at risk of preterm birth complication.

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