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Polymorphism in the exons 4 and 6 of the leptin receptor gene in relation to the duration of lactational amenorrhoea

K H Tennekoon[1,2*], C A Muller [1] and E H Karunanayake [1]
[1] *Institute of Biochemistry, Molecular Biology and Biotechnology, University of Colombo, Colombo 03*
[2] *Department of Physiology, Faculty of Medicine, University of Colombo, Colombo 08*

Leptin is thought to mediate the effects of nutritional status on reproduction. It acts on its cognate receptor (Ob-R) of which several isoforms exist. Most of the biological effects are exerted through the Ob-Rb isoform having the full length intracellular domain. Our previous studies did not find serum leptin to be a major mediator of early resumption of postpartum menstruation in better nourished lactating women. However the possibility of differences in leptin action due to receptor polymorphism was not excluded. In the present study we investigated Ob-Rb gene polymorphism in women who resumed postpartum menstruation before 24 weeks postpartum (short amenorrhoeics) and at or after 24 weeks postpartum (long amenorrhoeics).

Peripheral venous blood samples (10 ml) were obtained from 21 women (short amenorrhoeics: n=9, long amenorrhoeics: n=12). DNA was extracted and polymerase chain reaction (PCR) performed using an upstream mutated primer and a down stream sequence specific primer for exon 4 (Lys109Arg) and a sequence specific primer for exon 6 (Gln 223Arg). Exon 4 and exon 6 PCR products were subjected to single strand conformation polymorphism and restriction fragment length polymorphism respectively. Exon 4 polymorphism was evident in 5 women. Two of them were short amenorrhoeics and the remaining three long amenorrhoeics. Exon 6 polymorphism was evident in 16 women. Among the women who showed exon 6 polymorphism, 9 were homozygotic and the other 7 were heterozygotic. Among the 9 women showing homozygosity, 6 were long amenorrhoeics and 3 were short amenorrhoeics. Among the 7 women showing heterozygosity, 4 were long amenorrhoeics and 3 were short amenorrhoeics. There was no significant association of polymorphism in exon 4 or 6 with the duration of lactational amrnorrhoea. When analysed by body mass index (BMI), neither the current BMI nor the BMI at the time of lactational amenorrhoea showed any relation to prevalence of exon 4 or 6 polymorphism.

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