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The association of A3872G CRP gene polymorphism on hs-CRP levels and diabetic foot in patients with type 2 diabetes mellitus.

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Background and aims: We evaluated the impact of A3872G polymorphism of C-reactive protein (CRP) gene on high sensitivity CRP (hs-CRP) levels and diabetic foot in patients with type 2 diabetes mellitus (T2DM). **Methods:** The CRP3872AG polymorphism was detected in 431 patients with T2DM by polymerase chain reaction and appropriate restriction enzyme. Hs-CRP was assayed by particle enhanced immunonephelometry. Diabetic foot was defined according to the International Working Group on the Diabetic Foot recommendations. **Results:** The genotype distribution was 52, 27.2, 20.8 for the GG, AG, AA genotypes respectively, [mean age 66.55±9.953, males/females (n%):218(50.6)/212(49.2)] with significant gender difference males/females(n%) GG:(46.4/53.6) vs AA:(61.8/38.2), p=0.015. The logarithm of hs-CRP was significantly lower in carriers of ''A'' allele (AG+AA: 0.56±0.188) as well as in AG genotype (AG:0.56±0.184), compared with GG homozygotes (GG:0.61±0.257), (p=0.02, 0.04, respectively). The prevalence rates (%) of the GG, AG, AA genotypes were in subjects with neuropathy 34.2, 40.5, 37.1, with PAD 34.2, 39.7, 40.4 and with diabetic foot 37.8, 26.7, 32.6, respectively (p>0.05 for all comparisons). However, the AG genotype had lower odds for diabetic foot in comparison with GG homozygotes (odds ratio[OR]=0.59, 95% confidence intervals [CI]=0.36-0.98, p=0.042). This association remained significant after adjustment for gender, age, duration of diabetes, body mass index, smoking, hypertension, lipids, HbA1c and glomerular filtration rate, (p=0.043).In subjects with T2DM and diabetic foot, the GG compared with AG genotype had significant higher prevalence for neuropathy: GG(57.1%) vs AG(42.9%) ([OR] =3.125, 95%[CI]=1.161-8.412, P=0.024), but not for PAD, an association not observed in subjects with T2DM and no diabetic foot. **Conclusions:** The CRP3872AG polymorphism affects the hs-CRP levels and the presence of diabetic foot in patients with T2DM. The AG genotype is associated with lower serum hs-CRP levels and is protected from diabetic foot, while its odds for neuropathy is lower in patients with T2DM and diabetic foot, in comparison with GG homozygotes.