



Letter to the Editor

Methylenetetrahydrofolate reductase gene polymorphisms in Burkina Faso*Sir,*

In Burkina Faso, the levels of plasma homocysteine (Hcy) are lower and the methionine loading tests suggest a more effective Hcy metabolism [1,2]. We found a relevant difference in the allele frequencies of C677T: T 7.7% in the young and 3.3% in old subjects respectively (see Table 1). Frequencies of C677T genotypes in old and young individuals were in Hardy Weinberg equilibrium (HWE). The difference between allele frequencies of 1298C allele in the two groups was not significant ($P=0.752$). The observed frequencies of AA, AC and CC in old subjects were not in HWE (Expected vs. Observed: $X^2=12.944$, $P=0.002$). The young subjects subdivided by genotype showed different but not significant level of Hcy ($CC=5.9 \pm 1.9$; $CT=6.88 \pm 1.33$; $TT=9.52 \mu\text{mol/L}$). The old subjects, who had higher plasma values of Hcy, showed comparable levels between CC and CT genotypes (18.9 ± 7.02 and $18.7 \pm 1.97 \mu\text{mol/L}$ respectively). Besides, in young subjects after methionine loading test, the level of Hcy was significantly

higher in CT ($14.73 \pm 1.73 \mu\text{mol/L}$, $P=0.003$) and TT ($16.04 \mu\text{mol/L}$, $P=0.0001$) when compared with CC genotype ($12.72 \pm 2.14 \mu\text{mol/L}$). No statistical significance difference was found comparing CC and CT in old subjects (25.14 ± 3.57 vs. $27.12 \pm 2.23 \mu\text{mol/L}$). On the contrary the level of Hcy analyzed for A1298C polymorphism were similar compared to different genotypes. No statistically significant difference was found after methionine loading test in both young and old subjects.

In African population the low prevalence of C677T polymorphism, which in Western countries is associated to increased level of plasma Hcy and to stroke [3,4], guarantees the maintenance of low plasma levels of Hcy in young African men and women [1]. It is well known that the variability of Hcy levels are more evident in young than in older people related to the MTHFR polymorphism. We verify this observation and confirmed it after methionine loading test. However as observed by Spotila et al. [5] the difference between CC and CT 677 were not significant in old subjects. These data suggest that the increase of plasma Hcy in old subjects must be caused by different mechanism in old and young subjects. According to these results, we think that the genetic background of

Table 1

Distribution of methylenetetrahydrofolate reductase C677T and A1298C genotypes and allele frequencies in young and old African subjects living in Burkina Faso

	Age	Genotype frequency ^a			Allele frequency	
C677T	20–45 years	CC 78 (85.7%)	CT 12 (13.2%)	TT 1 (1.1%)	C 92.3%	T 7.7%
	50–90 years	CC 85 (93.4%)	CT 6 (6.6%)	TT 0 (0%)	C 96.7%	T 3.3%
A1298C	20–45 years	AA 72 (79.1%)	AC 15 (16.5%)	CC 4 (4.39%)	A 87.4%	C 12.6%
		AA 73 (80.2%)	AC 8 (8.8%)	CC 10 (11.0%)	A 84.6%	C 15.4%
	50–90 years	AA 73 (80.2%)	AC 8 (8.8%)	CC 10 (11.0%)	A 84.6%	C 15.4%

^a Number of subjects and percentages (in parentheses) are presented.

Burkina Faso is different from Western countries and comparable to other areas of Africa. We assume the idea that the C677T and A1298C mutations in MTHFR gene have, in each tribal or socio-cultural population group, a characteristic prevalence and they hopefully need more light for an appropriate therapeutic approach of their phenotypic effects.

References

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1 March 2005