Effects of a tryptic hydrolysate from bovine milk α_{S1}-casein on hemodynamic responses in healthy human volunteers facing successive mental and physical stress situations

Summary *Background* Preclinical results in rats have demonstrated anxiolytic-like effects of a tryptic bovine α_{S1}-casein hydrolysate. *Aim of the study* We investigated the putative effects of this tryptic hydrolysate on systolic (SBP), diastolic (DBP) blood pressures, heart rate (HR) values and plasma cortisol concentrations (CC) in human healthy volunteers facing successive stress situations. *Methods* The subjects were (double blind) randomly allocated to ingest three times, 12 hours apart, two capsules containing either 200 mg of α_{S1}-casein hydrolysate (TS) or bovine skimmed milk powder as a placebo (CS). On the morning of the test day, a first blood sample for baseline measurement of CC was taken before the subjects were submitted to the Stroop test (ST) and, after a 30-min rest, to a Cold Pressor test (CPT). SBP, DBP, and HR were continuously recorded for 5 min before the ST and during each stress situation. A second blood sample was taken 15 min after the end of the CPT condition. *Results* ST and ST + CPT combined test situations increased SBP, DBP and HR. The significant "Treatment x SBP" and "Treatment x DBP" interactions indicated the lower percentage changes in SBP and DBP of the TS. In addition, the results showed a significant decrease of the CC in the TS but not in the CS throughout the ST + CPT combined stress tests. HR remained stable in TS between the initial rest period and the CPT unlike what happened in CS. *Conclusion* On the basis of blood pressure and cortisol changes, these results suggest an antistress profile of this α_{S1}-casein hydrolysate in human subjects.

Key words milk α_{S1}-casein hydrolysate – blood pressure – heart rate – cortisol – stress