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Assessment of the effects of physiological release of melatonin on arterial distensibility and blood pressure.

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AIM: The aim of our study was to investigate the effects of endogenous melatonin on arterial distensibility using measurements of the velocity of the aortic pulse wave between the carotid and femoral arteries in healthy young students assessed in the supine position. **MATERIAL AND METHODS:** We studied 29 healthy young students, aged between 18 and 27 years, with 19 being male. We measured the velocity of the aortic pulse wave between the carotid and femoral arteries, along with the blood pressures and heart rate, while the subjects were in the supine position at two time points, namely from 01.30-02.30 and 13.30-14.30 hours, during a day, also taking plasma to measure the concentrations of melatonin. The velocity of the pulse waves was determined using an automatic device, the Complior Colson (France), which allowed on-line recording and automatic calculation of the velocity, the calculations being made by measuring the transit time of the pulse wave as it traversed the distance between two sites of recording according to the velocity of the pulse wave in meter per second being equal to the distance in meters divided by the time of transit in seconds. **RESULTS:** Although the velocity of the pulse wave, systolic, diastolic, and mean blood pressures, and heart rate were all increased in the morning relative to measurement made later in the day, levels of melatonin in the plasma were increased in the night. There was a negative correlation between diurnal levels of melatonin and the velocity of the pulse wave. **CONCLUSION:** Our findings indicate that increased levels of melatonin during the night may cause a decreased velocity of the aortic pulse wave, along with blood pressures and heart rate.

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