Patients with type 2 diabetes have a high risk of cardiovascular diseases. Thus, arterial stiffness gradient is a new prognostic predictor of mortality previously assessed only in dialysis population. The aim of the study was to assess arterial stiffness and stiffness gradient in diabetic patients with arterial hypertension (AH).

**Material and methods**

**Inclusion criteria**
- Patients with mild and moderate AH receiving combined antihypertensive therapy
- Target BP <140/85 mmHg was achieved in 52.7% of patients.
- Type 2 DM, hospitalization for mild diabetic ketoacidosis
- Antidiabetic treatment: oral glucose-lowering drugs in 13%, insulin in 87%
- Statins in 7.27% of patients

**Exclusion criteria**
- Atrial fibrillation
- Previous stroke or myocardial infarction
- Chronic heart failure class II-IV (NYHA)
- Clinical symptoms of peripheral arterial disease

**Methods**
- BP was measured with a validated oscillometric device.
- **Measurement of arterial stiffness**: Sphygmocor (AtCor, Australia):
  - Assessment of central pulse pressure (PP)
  - Assessment of carotid-femoral PWV (PWVc-f) and carotid-radial PWV (PWVc-r)
  - Calculation of stiffness gradient: PWVc-f/PWVc-r

**Criteria for arterial stiffness increase**
- Arterial stiffness
- Pulse pressure >60 mmHg, PWVc-f >10 m/s
- CAI >9,0
- Loss of stiffness gradient: PWVc-f/PWVc-r >1,0

**Statistical analysis**
- Data are presented as M±SD. p<0.05 was considered significant.

**Results**

Arterial stiffness characteristics in the study group (table 2):
1. PP >60 mmHg was observed in 18,1% (fig.1). Group with PP>60 mmHg was characterized by higher HbA1c (9.8±1.8 vs 8.4±2.0%) and stiffness gradient (1.4±0.4 vs 1.2±0.1); p<0.05 for trend.
2. Mean CR-PWV was 7.7±1.2 m/s, mean CF-PWV was 10.3±2.0 m/s. CF-PWV>10 m/s was observed in 27.2% of patients (fig.1). Groups with PWV above and below 10 m/s were similar by age, gender, metabolic risk factors and haemodynamic parameters (table 3).
3. Mean stiffness gradient was 1.3±0.4, gradient ≥1 was observed in 92.7%. Patients with high stiffness gradient were older (63.3±11.6 vs 54.0±10.2). All other parameters were similar (table 4).

**Conclusions**

Patients with arterial hypertension and type 2 diabetes mellitus are characterized by aortic-brachial stiffness mismatch. Thus it can be used as an early marker of vascular ageing in these patients’ population.