

BLOOD PRESSURE IN ACUTE ISCHEMIC STROKE – TO REDUCE

J. Wojczal

Dept. of Neurology, Medical University of Lublin, Lublin, Poland

Despite its high prevalence, the optimal management of arterial hypertension during the acute stage of ischemic stroke (IS) has not been established and remains an issue of long-lasting debate and little consensus. Both low and high admission systolic blood pressure (SBP) and diastolic blood pressure (DBP) values have been related to increased infarct volume and were confirmed to be independent prognostic factors for poor clinical outcome. In patients with high admission BP the higher rates of early recurrence and cerebral oedema were noted, while low BP values (SBP <120 mm Hg) in the acute stroke setting have been associated with a severe clinical stroke (total anterior circulation syndrome) and an excess of deaths due to coronary heart disease. There are many arguments supporting the therapeutic lowering of BP in the acute IS stage: (1) High BP levels in acute IS have been associated with subsequent death or dependency in a recent meta-analysis of observational studies investigating the association of BP with outcome. (2) Sustained high BP values, assessed by means of ambulatory blood pressure monitoring have been associated with subsequent oedema formation, whereas casually documented elevated BP values have also been related to death resulting from presumed cerebral oedema in acute IS patients according to the results of the International Stroke Trial (IST). (3) Data from observational studies have suggested that increased admission BP values are related to early and late stroke recurrence. The best outcome was observed in patients with normal or mildly elevated admission SBP (U point or nadir of the curve: 121–170 mm Hg) and DBP values (U point or nadir of the curve: 81–110 mm Hg), suggesting that both extremely high and low admission BP values are likely to affect outcome adversely.

In a majority of patients, a decline in blood pressure occurs within the first hours after stroke even without any specific medical treatment.

When needed, the appropriate treatment of BP in the setting of acute ischemic stroke (e.g. in the first few days after onset) remains unclear. The exception is the management of BP in patients treated with intravenous (IV) thrombolytic therapy, where the currently accepted protocol recommends strict BP control below defined guidelines. There are also some clinical conditions, which require urgent and effective antihypertensive therapy. The latter may be needed to treat patients with stroke who also have hypertensive encephalopathy, aortic dissection, acute renal failure, acute pulmonary edema, or acute myocardial infarction. There are several questions about the management of arterial hypertension in the setting of acute stroke. Should patients previously taking antihypertensive medications continue taking them during the first hours after stroke? Are some of these medications contraindicated or indicated? Should new antihypertensive agents be started? What level of blood pressure would mandate initiation of new antihypertensive treatment? Which medication should be administered in this situation? Unfortunately, definite answers to these questions are not available. According to AHA guidelines (2007), when treatment is indicated, lowering the blood pressure should be done cautiously. Some strokes may be secondary to hemodynamic factors, and a declining blood pressure may lead to neurological worsening. A reasonable goal would be to lower blood pressure by 15% to 25% within the first day. Because no data support the administration of any specific antihypertensive agent in the setting of acute ischemic stroke, the treating physician should select medications for lowering blood pressure on a case-by-case basis.

In conclusion, moderate decreases in levels of BP are protective against hemorrhagic transformation and cerebral edema; excessive acute decreases may threaten the ischemic penumbra.