
The SPRINT (Systolic Blood Pressure Intervention Trial) trial, a potentially landmark study found that treating to a systolic blood pressure target of 120 mm Hg lowered the incidence of adverse cardiovascular events in a high-risk population compared to standard treatment to a target of 140 mm Hg.

It is important to understand the inclusion and exclusion criteria as well as the adverse events of this study as they defined a limited number of patients within the general hypertension.

Inclusion criteria: SPRINT included patients older than the age of 50, with high blood pressure a systolic blood pressure of 130 to 180 mm Hg, and increased cardiovascular risk, as defined by clinical or subclinical cardiovascular disease other than stroke, chronic kidney disease (eGFR 20 to <60 ml per minute per 1.73 m^2 of body-surface area), Framingham 10-year cardiovascular risk greater than 15%, or age >75.

Exclusion criteria: Patients with diabetes mellitus, a history of prior stroke, 24 hour urinary protein excretion ≥1 g/day, diagnosis of polycystic kidney disease and symptomatic heart failure within the prior 6 months or left ventricular ejection fraction < 35%.

Other important information: BP measurements in this study were based on the average of three readings, taken automatically at 5-minute intervals with no clinician in the room (this method yields substantially lower readings than does a single measurement by a clinician).

Results: The trial was terminated early after a median follow-up of 3.3 years, during which participants' average systolic BPs were 121.5 mm Hg and 134.6 mm Hg in the intensive- and standard-treatment groups, respectively and the mean number of blood-pressure medications was 2.8 and 1.8, respectively.

A primary outcome event occurred significantly less often in the intensive-treatment group (1.65% per year) than in the standard-treatment group (2.19% per year). A total of 365 deaths occurred — 155 in the intensive-treatment group and 210 in the standard-treatment group. Two individual components of the composite outcome were significantly lower with intensive treatment — heart failure (1.3% vs. 2.1%) and CV-related death (0.8% vs. 1.4%). All-cause mortality also was significantly lower with intensive treatment (3.3% vs. 4.5%).

Adverse events: Several serious adverse events were significantly more common with intensive than with standard treatment: incidences of hypotension, syncope, and electrolyte abnormalities, but not injurious falls, were each about 1 percentage point higher, and incidence of acute kidney injury was about 2 percentage points higher. Among patients without CKD at baseline, the incidence of a >30% decline in glomerular filtration rate was significantly greater with intensive treatment (3.8% vs. 1.1%). Orthostatic hypotension as assessed during a clinic visit was significantly less common in the intensive-treatment group.