great degree of non-accurate, misleading results generated by such assessments in daily clinical practice. Two examples bellow highlight the consequences of only minimal biased assessments (e.g., ± 5 mmHg).

An overestimating systematic error of 5 mmHg would misclassify some 27 million people as being hypertensive rather than having normal-high blood pressure, i.e., prehypertension [67]. The individual and societal consequences of initiating drug treatment in this segment of the population might be huge and, eventually translate into a real public health burden. Namely, patients with a low absolute risk may be exposed to the potential side effects of a treatment for little or no therapeutic benefit.

Further, a systematic error of underestimating true blood pressure by 5 mmHg would mean that 21 million people would go untreated as their real hypertension would be labelled as normal-high blood pressure [67]. In this scenario, patients with high absolute risk who are misclassified as having controlled hypertension will have a higher risk of cardiovascular event than necessary.

Both these scenarios may occur with rather high probability in clinical practice given the current, widespread model of healthcare based on a dichotomous paradigm of "yes/no" decision making as to establishing an initial diagnosis, as to the need to investigate or not investigate or, to treat or not to treat, currently arbitrarily fixed for hypertension at 140/90 mmHg.

Amazingly, the scientific community seems to accept the particular outlook reflected by this dichotomous reasoning despite widespread awareness that the risk associated with increasing blood pressure is graded and continuous. It begins as low as at 115/75 mmHg [1] and increases gradually without, however, a particular threshold being known on the BP curve that might discriminate between *risk*/*no risk* circumstances [68].

The lack of such a threshold combined with the information derived from a multitude of clinical trials, convincingly demonstrating the benefits of treatment across all levels of blood pressure in Western populations (not only in hypertension) [69-71], have generated "*the lower the blood pressure, the better*" – treatment philosophy, applicable to the general population and advocated as such by the majority of current guidelines.

The <140/90 mmHg cut-off point (respectively <130/80 mmHg for those with compelling indications) have been chosen as treatment *goal*/*target* for pharmacologically treated hypertensives. These targets are supposed to be pursued aggressively with even three or four drugs if needed, in order to achieve "optimal" or "normal" BP in young, middle-aged, or diabetic subjects (below 130/80 mmHg), and at least "high-normal" BP in elderly patients (i.e., <140/90 mmHg) [72,73].

Unfortunately, current evidence indicates that most patients fail to achieve systolic blood pressure below 140 mmHg [74-76]. According to a survey of hypertension in 10 countries worldwide, the proportion of patients achieving a blood pressure target below 140/90 mmHg ranged from a maximum of 27% in the USA to a minimum of less than 3% in Zaire [77]. In clinical trials focusing hypertension treatment the control rate is around 6% [78].

Mancia and Grassi [79] pointed out that even in the case of ideal scenario whereby "patient compliance and physician's expertise were ensured, attaining systolic blood pressure control would neither frequently nor easily be obtained".

Additionally, common sense suggests that there may be a level at which the benefits of treatment are outweighed by its side effects [80]. Likewise, it is obvious that the absolute benefits gained differ substantially between elderly and middle aged people and those with or without preexisting cardiovascular disease [81,82]. Appropriate assessment of these variables is a matter of judgement of the treating physician, based not on occasional blood pressure measurements but rather, on complex clinical decision making employed on a case-to-case basis [83-88].

The aforementioned major problems with accurately measuring blood pressure in day-to-day clinical practice for the purpose of diagnosis and treatment of hypertension, highlight the magnitude of the uncertainty range around the current blood pressure cut-off point (140/90 mmHg), consisting of huge number of people being misdiagnosed of having or not having hypertension.

Failure in both directions are regrettable but, in the context of currently increasing aggressive approach to hypertension mandated by most guidelines, overdiagnosis exposes people unnecessarily to considerable risk for adverse drug reactions (ADR).

Poor treatment compliance rates – often a reflection of overdiagnosis?

Patients' low compliance rate with the prescribed medication is a widely acknowledged problem in hypertension treatment. Up to 50% of the patients quit the treatment they were given within the first year [89-92]. Adverse events with antihypertensive treatment are to a large extent dose related. More than 75% of these ADRs occur as such, at initiation of antihypertensive treatment