

Using epidemiological data to assess vascular risk

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The contribution of epidemiological studies to the assessment of vascular risk first began with the identification of risk factors at a population level, and then moved to the estimation of the probability of developing the disease within a fixed time frame for a given individual. Such prognostic models are used for risk stratification and clinical decision purposes. As an exemplification, we will illustrate the use of epidemiological data to estimate the risk of first atherosclerotic cardiovascular event in middle-aged adults. Data come from several prospective population-based cohort studies of middle-aged individuals recruited in Italy on a wide time span covering from mid 1980s to early 2010s. The earliest cohorts have now been followed-up for more than 16 years as a median time. First, we will discuss the accuracy of prognostic models developed in a given population when used either in another one, or in specific subgroups such as people in different social classes. Second, we will introduce the concept of “improvement” in risk prediction due to the inclusion of additional risk factors on top of established ones, with particular reference to the “intermediate risk” category, a grey area in which clinical decision making is uncertain. Finally, we will discuss the role of epidemiological data in the shifting paradigm of primary prevention, i.e. from modelling disease risk to promoting and enhancing the ideal cardio-vascular health.