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How to optimize the use of biobanks from population-based cohorts in aging research

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ABSTRACT

In epidemiological cohorts, there is an increased interest for the implementation of biobanks. The potential role of biological determinants of diseases needs to be investigated before the onset of the event of interest in order to limit the problems encountered when examining biological determinants in classical case-control studies. Biobank is now a very sophisticated system that consists of a programmed storage of biological material and related data. Our aim in this paper is to document how biobank constitution is useful for studying biological determinants of aging and to give some indications on methodological issues that can be helpful to optimize the constitution and use of biobanks in aging cohorts. Optimization of sampling through two-phase designs (nested case control or case-cohort studies) allows better efficiency. These elements are, for most of them, not specific to aging populations but are useful more generally for the epidemiology of chronic diseases. Our purpose will be illustrated with some examples and results obtained in an ongoing aging cohort, the Three-City Study.

KEYWORDS: Aging; Biobank; Cohort; Sampling

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