Abstract 18AP1-4

Exposure to general anaesthesia could increase the risk of dementia in elderly

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Background and Goal of Study: Postoperative cognitive dysfunction (POCD) could be associated, several years after, with an increased risk of dementia (1). Several experimental studies suggest that some anaesthetics could promote neuroinflammation and formation of Alzheimer's disease (AD) precursors (2). The aim of this study was to analyze the risk of dementia associated with anaesthesia within a prospective population-based cohort of elderly.

Materials and Methods: The Three-City (3C) study is a prospective population-based cohort, designed to assess the risk of dementia and cognitive decline due to vascular risk factors. Participants aged 65 years and over were interviewed at baseline and subsequently 2, 4, 7 and 10 years after. Each examination included a complete cognitive evaluation with systematic screening of dementia. From the 2-year follow-up, 7008 non-demented participants were asked at each follow-up whether they have had a history of anaesthesia (general anaesthesia (GA) or local/locoregional anaesthesia (LRA)) since the last follow-up. Data were analyzed using a Cox model with delayed entry with anesthesia as time-dependent variable, adjusted for potentially confounding factors (socio-economic factors and comorbidities).

Results and Discussion: Mean age of participants was 75.4 years and 62.1% were women. At the 2-year follow-up, 32.9% of the participants (n=2309) reported an anaesthesia over the 2 previous years, with 19.0% (n=1333) reporting a GA and 13.5% (n=948) a LRA. A total of 632 (9.0%) participants developed a dementia over the 8 subsequent years of follow-up, among them 284 probable AD and 228 possible AD. Future incident demented reported more often an anaesthesia at the 2-year follow-up, 37.0% for future incident demented vs 32.5% for non-incident demented (p=0.022). This difference in anesthesia was due to difference in GA, with 22.3% of future demented reporting a GA vs 18.7% of non-future demented (p=0.0264). After adjustment, participants with at least one GA over the follow-up had an increased risk of developing a dementia over the follow-up compared with participants without anaesthesia (Relative Risk=1.35 [95%CI: 1.11-1.63]).

Conclusion: These results are in favor of an increased risk for dementia several years after a general anaesthesia. A long-term follow-up of these patients should be planned.