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ICD implantation in secondary prevention after an out-of-hospital cardiac arrest. Does age really matter?

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Background: The implantation of an implantable cardioverter defibrillator (ICD) in secondary prevention is a class I indication for patients with an estimated survival more than 1 year with a good functional status. However, in the elderly population, it is often difficult to estimate the expected survival, especially after an acute event such as an out-of-hospital cardiac arrest (OHCA).

Purpose: To evaluate 1-year survival after OHCA of patients older than 80 compared to those younger than 80.

Methods: We considered all the patients who suffered an OHCA in our Province (550000 inhabitants in northern Italy) from October 1st 2014 to November 30th 2017 stratified in two groups accordingly to their age at the moment of OHCA: elderly group (≥80 years old) and non-elderly group (<80 years old).

Results: In the period analysis resuscitation was attempted in 1464 OHCA patients: 632 of the elderly group (mean age of 86.4±4.4 years) and 832 of the non-elderly group (mean age of 63.4±13.8 years). The two groups were different at baseline. In the non-elderly group there were more males (74.5% vs 42.4%, p<0.001), more cases of medical etiology (95.9% vs 91.2%, p<0.001), a higher rate of bystander CPR (39.4% vs 23.4%, p<0.001) and more shockable rhythms at presentation (25.5% vs 7.9%, p<0.001), whilst a home location of the event was more frequent in the elderly group (81.3% vs 77%, p=0.048). No differences were found regarding both the percentage of not witnessed cardiac arrest (27.5% in elderly and 26% in non-elderly, p=0.57) and the time of EMS arrival (11:36 mins in elderly and 11:23 mins in young, p=0.64). Non-elderly patients showed a significantly higher rate of survival both to hospital admission (25.2% vs 6.8%, p<0.001), to hospital discharge (12.1% vs 1.7%, p<0.001) and at 1 year after the event (10.2% vs 1.6%, p<0.001, Figure 1 - left) as compared to older ones. However, when considering only those patients discharged alive we found a non-significant difference in one-year survival (84.2% vs 90.9%, p=0.64, Figure 1 – right).

Conclusions: Elderly patients have a worst prognosis in the acute phase after an OHCA. However, after hospital discharge, older and younger patients showed a similar 1-year survival. This result highlights how age should not be considered alone to decide whether an ICD in secondary prevention could be indicated or not in older OHCA survivors.