Longer distance from home to invasive centre is associated with lower rate of coronary angiographies following acute coronary syndrome.

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Publication date:
2009

Document version
Publisher's PDF, also known as Version of record

Citation for published version (APA):
Lower chance of coronary angiography after ACS if you live far away from an invasive centre

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Purpose

We investigated if there was a difference in the rate of coronary angiography (CAG) after first acute coronary syndrome (ACS) depending on distance between place of residence and invasive centre.

Methods

Background:

Denmark (population 5.5 million) has a universal health insurance coverage system and uniform national guidelines for the treatment of ACS. Invasive treatment of cardiac patients has been centralized to a few highly specialized units.

9 assisting subacute CAG centres
48 other hospitals
5 invasive centres

We included 24 910 patients (83.5\% with myocardial infarction). Of those patients 1/3 lived less than 21 kilometers from an invasive centre and 1/3 lived more than 64 kilometres away. In all 18236 (73\%) of the patients were examined with CAG.

The cumulative incidence of CAG after two months was 77\% for the third living closest to a centre vs 68\% for those living furthest away. Distance to invasive centre was associated with less invasive examination after the event. Even after adjusting for other known risk factors such as gender, age, income, education, admission year, previous revasc., comorbidity and medicine use, there was a highly significant hazard ratio of 0.74 (95\% CI 0.71-0.77, p < 0.0001) of receiving CAG for the patients living far away in comparison to those living closest.

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Results

Figure 1. Hospitals admitting ACS patients and their locations in Denmark

• We included, from the National Patient Registry, all patients hospitalized with ACS (both STEMI, non-STEMI and UAP) for the first time in 2005-2007. Patients were followed for 60 days.

• Information on distance from the patients place of residence to nearest invasive centre travelling on normal road was obtained from Statistics Denmark. Patients were grouped in tertiles according to distance from home to centre.

• From the Danish Heart Registry procedures (CAG) were identified.

• Information on comorbidity, medicine use, socioeconomic status and vital status was available on each patient.

• Cox proportional-hazard models were used to estimate the difference in the rate of CAG within 60 days of the admission adjusting for explanatory variables.

Figure 2. Cumulative incidence curves for receiving coronary angiography depending on where patient lives

Figure 3. Association between distance to an invasive centre and the chance of receiving coronary angiography

Conclusion

Patients hospitalized with a first acute coronary syndrome are treated with a less aggressive invasive approach the further away they live from an invasive centre.