Press Conference

Title

Bedside Mental status assessment as an independent correlate of mortality in elderly patients admitted for acute coronary syndromes

Presenter

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Background

Age is associated with:

- High rates of ACS: >30% of patients admitted for ACS > 75 y
- High risk of mortality after ACS
  - > 50% of in-hospital death occurs in > 75 y
  - Compared to those <85, the risk of mortality is 3 to 9 times higher after age 85.
- High prevalence of dementia and in-hospital delirium/confusion.
- A significant association between atherosclerosis and dementia has been previously reported supporting a possible link between coronary artery disease and mental status.

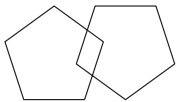
Background

The Mini-Mental State Examination (MMSE) and the Confusion Assessment Method (CAM) are is used on routine basis for the screening and the assessment of the severity of dementia and confusion respectively in clinical and research settings.

The Mini-Mental State Exam

Patient_____ Examiner _____ Date_____

Maximum	Score	
		Orientation
5	( )	What is the (year) (season) (date) (day) (month)?
5	( )	Where are we (state) (country) (town) (hospital) (floor)?
		Registration
3	( )	Name 3 objects: 1 second to say each. Then ask the patient all 3 after you have said them. Give 1 point for each correct answer. Then repeat them until he/she learns all 3. Count trials and record. Trials _____
		Attention and Calculation
5	( )	Serial 7's. 1 point for each correct answer. Stop after 5 answers. Alternatively spell "world" backward.
		Recall
3	( )	Ask for the 3 objects repeated above. Give 1 point for each correct answer.
		Language
2	( )	Name a pencil and watch.
1	( )	Repeat the following "No ifs, ands, or buts"
3	( )	Follow a 3-stage command: "Take a paper in your hand, fold it in half, and put it on the floor."
1	( )	Read and obey the following: CLOSE YOUR EYES
1	( )	Write a sentence.
1	( )	Copy the design shown.



____ Total Score

ASSESS level of consciousness along a continuum _____

Alert Drowsy Stupor Coma

The diagnosis of delirium by CAM requires the presence of BOTH features *A* and *B*

Purpose & Methods:

Purpose

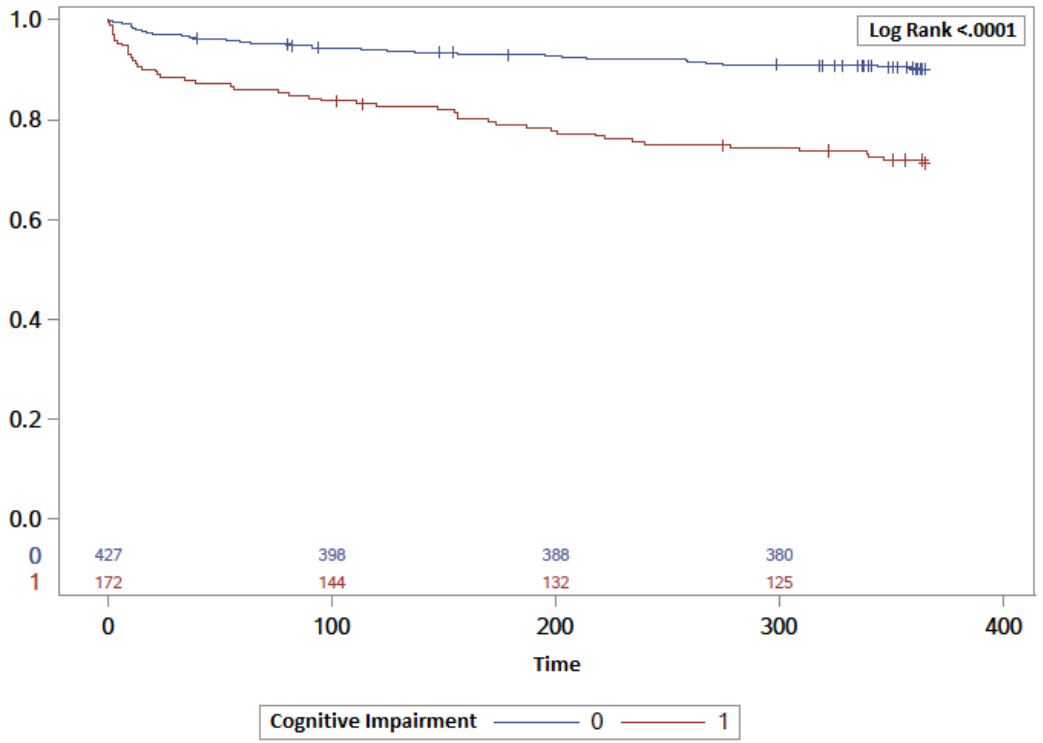
- to assess the impact of mental status on outcomes after ACS in elderly patients.

Methods:

- Prospective, open, ongoing cohort of patients ≥ 75 years old admitted for an ACS (STEMI, NSTEMI or unstable angina) to the cardiology department of the University Hospital of CAEN.
- Cognitive impairment was defined in the presence of any of the following criteria:
  - Abnormal CAM
  - Age and education level-weighted MMSE < 25th percentile
- Follow-up was completed at 3 months and 1 year in all patients
- The primary outcome of the study was total mortality at 1-year follow-up.
- The secondary endpoints assessed at hospital discharge and 3 months follow-up:
  - Death, Rehospitalization, Major bleeding (BARC type ≥3).

Results 1: demographics and 1 year survival in 600 patients > 75 y

Variable	No Cog impairment N= 428 (71%)	Cog impairment N=172 (29%)	p
Age, y	82±4.7	82.7±4.7	0.12
Male gender	243(56.8)	92(53.4)	0.45
Primary school	313(73.5)	107(62.6)	0.008
STEMI,	147(34.3)	69(40.2)	0.18
BMI, $kg.m^{-2}$	26.6±4.4	25.6±4.8	0.02
Killip Class>1	118(27.7)	68(38.7)	0.0042
GRACE score	172.5±26.4	184.7±27.9	<0.0001
CRUSADE score	39.5±21.7	43.6±14.6	0.0007
MMSE score	26.07±2.47	19.30±4.50	<0.0001
Abnormal CAM	0(0)	19(10.9)	<0.0001
Revascularization	309(72.2)	100(58.1)	0.0008



Results 2:Outcomes

Outcome	All patients N=600	No cognitive impairment N=428	Cognitive impairment N=172	Unadjusted OR(CI)	p	Adjusted OR(CI)	p
In-hospital							
Bleeding BARC≥ 3, n (%)	27(4.5)	14(3.3)	13(7.5)	2.49(1.14; 5.43)	0.02	2.2(1.008; 4.9)	0.048
Death, n (%)	16(2.7)	8(1.9)	8(4.6)	2.93(1.047; 8.22)	0.04	3.4(0.9;12 .5)	0.065
3 months follow-up							
Death, n (%)	51(8.9)	24(5.8)	27(16.2)	3.21(1.79; 5.75)	<0.0001	2.57(1.34; 4.9)	0.0047
Cardiovascular eath(%)	34(5.9)	15(3.6)	19(11.6)	3.5(1.7; 7.03)	<0.0001	3(1.4; 6.4)	0.0045
Rehospitalization(%)	180(31.4)	116(28)	64(40)	1.70(1.16; 2.50)	0.0061	1.6(1.09; 2.4)	0.016
For cardiovascular causes, n (%)	107(18.7)	67(16.2)	40(25)	1.72(1.10; 2.68)	0.016	1.6(1.02; 2.6)	0.04
For recurrent ACS, n (%)	54(9)	36 (7)	18(10.3)	1.27(0.70; 2.30)	0.42	1.29(0.7; 2.37)	0.41
For heart failure, n (%)	85(14.9)	51(12.4)	34(21.5)	1.90(1.18; 3.07)	0.008	1.8(1.07; 3.05)	0.03
Bleeding BARC≥3, n (%)	44(7.3)	32(7.5)	12(6.9)	0.85(0.41; 1.71)	0.64	0.86(0.42; 1.7)	0.7
1 year follow-up				HR(CI)			
Death, n (%)	92(15.3)	43(10.5)	49(28.6)	3.24(2.14; 4.9)	<0.0001	2.35(1.53; 3.58)	0.0001

Models adjusted on age, sex, ST-elevation myocardial infarction versus other presentation, **revascularization, GRACE Score**, Killip class. Bleeding models were adjusted on the CRUSADE score

Conclusions & key points

Our study shows that in an elderly population (≥75 y) admitted for ACS

- #30% of patients suffer from cognitive impairment defined by reduced MMSE or delirium detected by CAM.
- Such condition is associated with higher risks of mortality, bleeding and re-hospitalization.
- The relationship with outcomes is independent of other major correlates of such events.
- The bedside assessment of mental status early after admission allows further identification of patients at risk in an already high risk population and may be considered by physicians on routine basis in such patients.
- Our results warrant further studies to assess whether the detection of cognitive impairment and the subsequent specific management may lead to improved outcome in the elderly ACS population