

Objectives

We report data coming out from the first, the largest and the longest Italian region wide experience of telecardiology applied to public emergency health care. The network involved 154 crews of "118" emergency number that were equipped with CardioVox-P12 devices for 12 leads ECG recording and telephone transmission. Logistic support was furnished by Cardio-on-line Europe S.r.l. thanks to a grant by Pfizer™.



Methods & Materials

15475 patients from all over Apulia (19.362 Km², 4 millions inhabitants) referred since October 2004 until November 2005 to "118" and underwent ECG according to a previously fixed inclusion protocol. Data recorded were transmitted with mobile telephone to a call-center with a consultant cardiologist. Hospitalization or further cardiologic examination were disposed by emergency physicians on basis of ECG diagnosis and consultation.



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Results

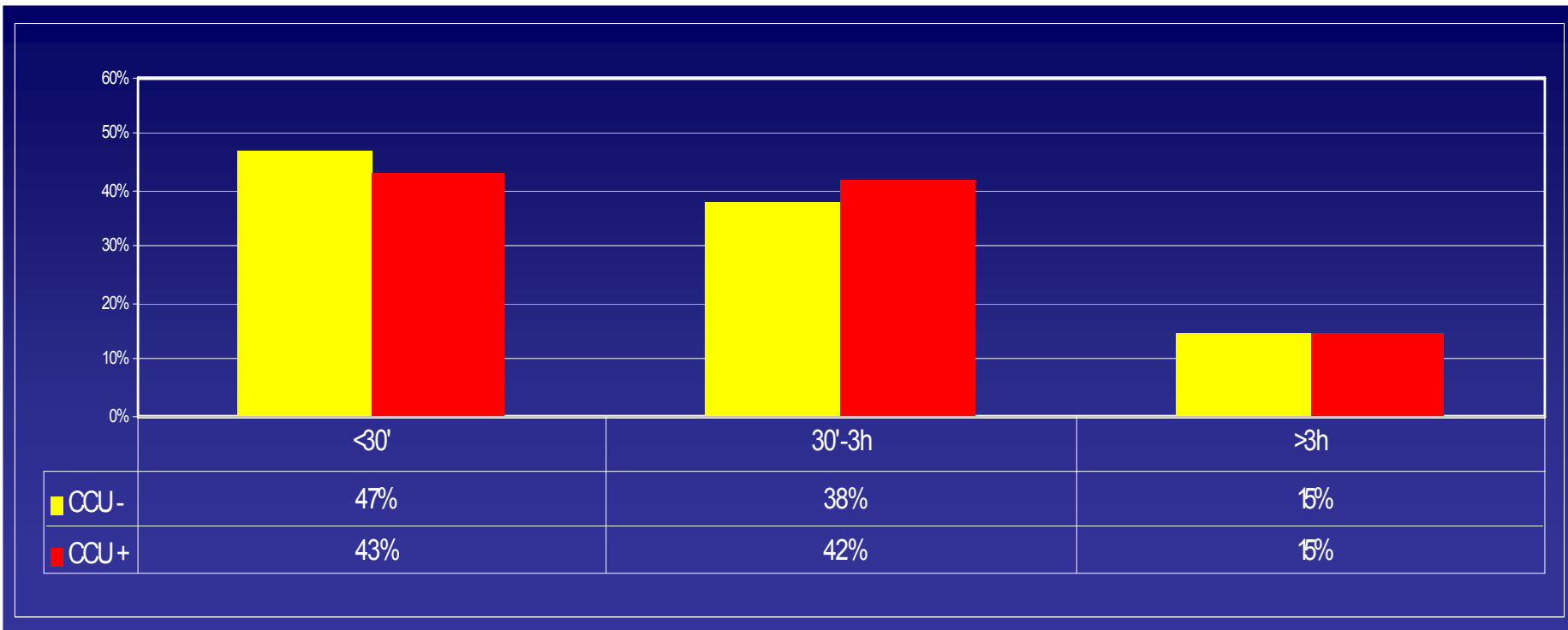
Mean age was 65 ± 18 years; 73% of patients referred chest or epigastric pain, 10% loss of consciousness, 4% breathlessness, 3% palpitations. Acute myocardial infarction (AMI) was diagnosed in 2.2%. Peak in incidence of AMI was observed in autumn.

Among patients with chest or epigastric pain, in 2.4% of cases ECG showed STEMI; patients with AMI referred chest pain in 76.5% of cases, breathlessness in 5.2%, palpitations in 1.16%, loss of consciousness in 7%, other symptoms in 5.2%. 5% of subjects referred to "118" <30 minutes after onset of symptoms, 35% between 30 m' and 3 hours, 52% 3-6 hours, 1% 6-12 hours, 6% >12 hours; out of 11.000 patients with chest or epigastric pain, thus 1.48% of patients was theoretically eligible for fibrinolysis or primary PCI. In this subset of patients telecardiology diagnosis consistently shortened delay to treatment. More than 35% of subjects with STEMI was more than 75 years old.

49.8% received "118" assistance in towns without coronary care unit (CCU); 46% of patients with STEMI was from small towns without CCU, thus benefiting from immediate diagnosis. Among these patients from small towns, 47% called "118" within 30 m' after onset of chest pain, 38% within 3 hours, thus further benefiting from a very early diagnosis of STEMI because of time to reach CCU or cathlab; similar time delay was recorded in bigger towns with CCU (43.3%+41.7%).



Results



Rates of patients per classes of time to diagnosis: cities with coronary care unit (CCU) vs. towns without CCU



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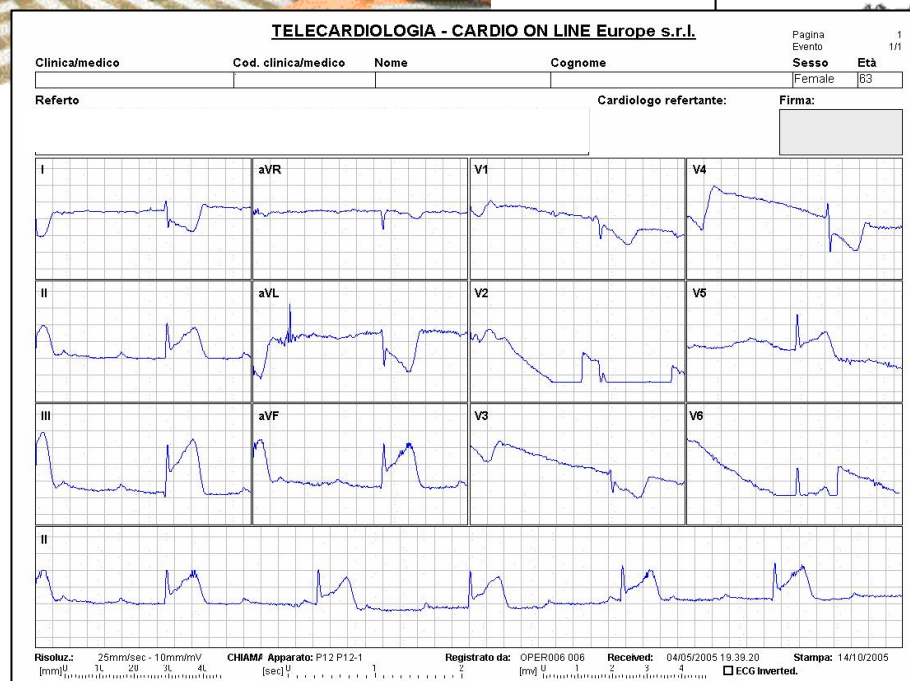
Illustrations & Figures



Telecardiology call-centre



Italy: Apulia



An ECG sent by telephone: inferior wall acute myocardial infarction



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Conclusions

This first region wide leading experience showed feasibility and reliability of telecardiology applied to a public emergency health care. Lower number of improper hospitalizations and shorter delay in diagnosis process point out advantages yieldable applying telemedicine protocols also to large public emergency health care networks.



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