Adherence to guideline-based therapy has led to a reduction of hospital mortality in patients with myocardial infarction presenting with and without ST-segment elevation: Results of the Berlin Myocardial Infarction Registry

B. Maier, W. Thimme, R. Schoeller, A. Fried, S. Behrens and H. Theres, on behalf of the Berlin Myocardial Infarction Registry

Aim of the study: Guidelines for treatment of patients with myocardial infarction (MI) have been regularly updated. In addition, a new definition for acute MI has been recently established. The aim of our study was to evaluate development of treatment and effects on patient outcome.

Material and Method

We prospectively collected data from 6080 consecutive MI patients presenting with (STEMI, *n* = 4314) and without ST-segment elevation (NSTEMI, *n* = 1766) who were treated in 22 hospitals in Berlin, Germany, in the years 1999 to 2004.

Results

NSTEMI patients were on average 68 years and STEMI patients on average 65 years. 34% of STEMI and 37% of NSTEMI patients were women. These findings did not change significantly between 99-04. STEMI and NSTEMI patients showed an increase over time in arterial hypertension, smoking, hypercholesterolaemia, history of congestive heart failure, and renal failure.

Fig. 1: Development over time for STEMI and NSTEMI patients

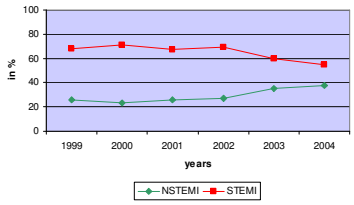


Fig. 2: Reperfusion therapy for STEMI and NSTEMi patients

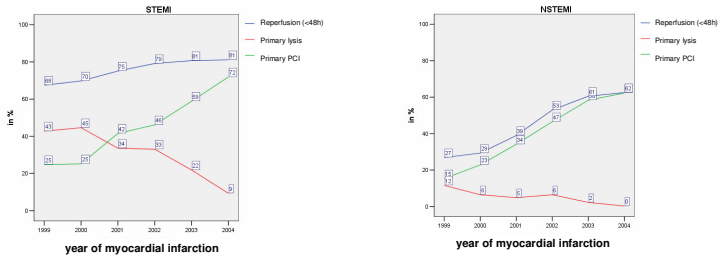


Fig. 3: Concommitant initial therapy for STEMI and NSTEMI patients

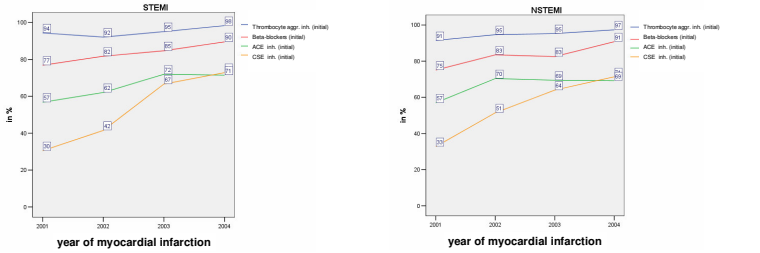


Fig. 4: Discharge medication for STEMI and NSTEMI patients

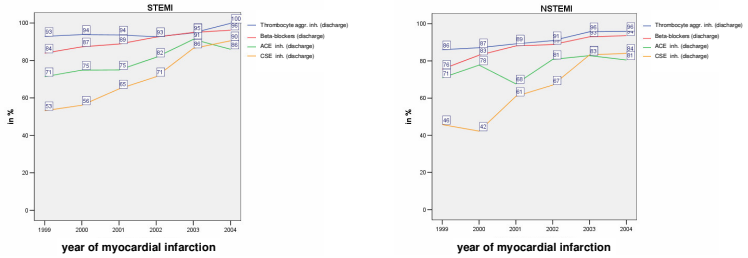
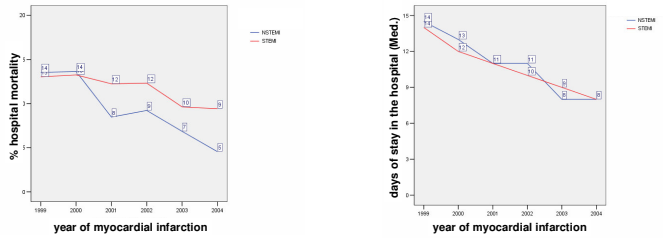


Fig. 5: Hospital mortality and length of stay in the hospital for STEMI and NSTEMI patients



Summary

MI patients over time (1999-2004):

- The number of NSTEMI patients increased; this is based on the new definition of ACS.
- Patients' basic characteristics remained the same (e.g. age and sex distribution).
- Risk factors and medical history of renal failure or CHF increased; it is assumed that this is associated with the introduction of a new hospital financing system based on DRGs.
- Guidelines for the treatment of ACS have three components: reperfusion, concommitant therapy and discharge medication. Guideline based therapy has increased in all components .
- Hospital mortality decreased for STEMI and NSTEMI patients, with a greater impact on NSTEMI patients.
- The length of stay in the hospital was reduced.

Discussion

Keeping the new definition of MI and the change in the German hospital financing system (towards a DRG based system) in mind, we may assume that patients' characteristcs have not changed as much over time as one would imagine at first look.
Therefore we assume that the reduction in hospital mortality may be associated with the increase in the different components of the guideline based therapy. The shortening of the length of stay in the hospital - as other analysis has shown - cannot explain the reduction in hospital mortality.

Teilnehmende Krankenhäuser seit 1999-2004 (nicht alle kontinuierlich)

Caritas-Klinik Pankow Bereich Maria Heimsuchung, Charité Campus Buch, Charité Campus Mitte, Charite Campus Virchow, Dominikus-Krankenhaus, DRK-Kliniken Mark Brandenburg, DRK-Kliniken Köpenick, DRK-Kliniken Westend, Elisabeth-Krankenhaus, Ev. Waldkrankenhaus, Gemeinschaftskrankenhaus Havelhöhe, Jüdisches Krankenhaus, Krankenhaus Hedwigshöhe, Krankenhaus Lichtenberg, Krankenhaus Moabit, Martin-Luther-Krankenhaus, Krankenhaus Lichtenberg, Parkklinik Weißensee, St. Marien Krankenhaus, St. Gertrauden-Krankenhaus, Unfallkrankenhaus Berlin, Vivantes Auguste-Viktoria Klinikum, Vivantes Humboldt-Klinikum, Vivantes Klinikum am Urban, Vivantes Klinikum Hellersdorf, Vivantes Klinikum im Friedrichshain, Vivantes Wenckebach Klinikum

Das Berliner Herzinfarktregister wird / wurde unterstützt von:

- Berliner Herzinfarktregister e.V.
- Institut für Gesundheitswissenschaften an der TU-Berlin
- Senatsverwaltung für Gesundheit, Soziales und Verbraucherschutz
- Ärztekammer Berlin
- Freunde und Förderer der Charité e.V.
- Boehringer Ingelheim Pharma KG
- Boston Scientific Medizintechnik GmbH
- Cordis Medizinische Apparate GmbH
- GlaxoSmithKline GmbH
- Lilly Deutschland GmbH
- MSD SHARP & DOHME GmbH

Berliner Herzinfarktregister e.V.