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Early heart attack care as a prehospital programme designed to supplement the established chest pain unit concept in Germany

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In spring 2017, a dedicated task force within the Acute Cardiovascular Care Association (ACCA) published an evidence-based framework for the development of standardised chest pain units (CPUs) throughout Europe. Analogous to the recommendations of the German Cardiac Society (GCS), the task force defined recommendations on risk assessment, organisational structure, physical and technical requirements, diagnostic and therapeutic algorithms, discriminating between baseline and advanced level CPUs.[1,2]

As compared to the accreditation programme in the United States, there is a major difference in community outreach: in the US, a programme named early heart attack care (EHAC) was set up in 2012 in order to improve awareness, education and engagement within the preclinical setting involving patients, relatives, bystanders and emergency medical systems (EMSs). The key message aims to recognise early the prodromal symptoms of ischaemia before the actual myocardial infarction and to overcome preclinical denial of the distressed individuals as well as their surroundings. EHAC tries to expand the idea of structured heart attack care from the hospital to the community, with the involvement and training of bystanders to increase the number of active, committed caregivers beyond the level of medical professionals.[3]

Although both ACCA and GCS already provide clear in-hospital pathways to ensure high skilled care in ischaemic-type chest discomfort, they are predominantly addressing individuals in the later stages of ischaemia or even with manifest myocardial infarction. However, many patients still misinterpret symptoms and do not appreciate the need for urgent evaluation of acute ischaemic heart disease. Therefore, prehospital time delays are still the main problem with timely reperfusion. With increasing awareness about CPUs in the population, more patients tend to refer themselves to a CPU in the case of acute chest pain. Data from the German CPU registry estimate a proportion of self-referral of up to 30%. Simultaneously, self-referrals showed a patient-related additional delay of 4 hours, even though about 13% presented with ST-segment elevation myocardial infarction (STEMI) or troponin-positive non-ST-elevation acute coronary syndrome. A very recent analysis on referral patterns of STEMI showed a high percentage of 12.7% presenting as self-referrals, 16.1% had to be transferred and 15.2% initially presented at a general practitioner (GP). At about 3 hours, patients admitted by EMSs (55.9%) had the shortest time intervals, those presenting to a GP experienced the longest symptom-to-balloon times of about 20 hours until invasive treatment, and self-referrals found themselves something in between. Still, it has to be stressed that the CPU concept mainly focuses on non-ST-elevation acute coronary syndrome patients except for STEMI walk-ins, and must ensure direct cath lab access to emergency care providers delivering patients with suspected STEMI instead of wasting time by simple patient drop-off in the CPU. In line with this, German registry data demonstrate a low percentage of 4.8% of STEMI patients admitted by the EMSs to the CPU instead of bypassing it.[4] However, in addition and most likely due to a delayed activation of internal pathways, self-referral also leads to a significant delay in door-to-balloon times.[4,5]

Optimal integration of prehospital and hospital-based providers is crucial for timely reperfusion. In contrast to the current understanding, we believe that the ultimate CPU can only exist together with the community. As further in-hospital improvement of CPUs is limited and door-to-balloon times are progressively replaced by symptoms or ECG to wire crossing times, the next step within the CPU concept must be the link into the community to capture patients in the early stages of ischaemia before experiencing irreversible myocardial damage. From our point of view, on the one hand emphasis of the role of EMSs as the key providers

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for preclinical care in acute chest pain must be reinforced, on the other hand a new prehospital network facilitating access for individuals with pre-angina to high-level CPUs has to be set up in order to support reductions of prehospital time delays and to improve acute chest pain-related mortality further. Even though the latter is different from the original intent of integrating EMSs and CPU care, it is far more attractive than delaying symptoms of ischaemia and has already stimulated a discussion about improved low-threshold access to CPUs for patients' self-referral.

To implement the EHAC idea, first action steps in Germany will include the production of an online teaching platform with certification abilities for widespread training of non-professional caregivers. Furthermore, the formation of an EHAC task force has been started. The aims of the EHAC concept have already been presented to the board of the German Heart Foundation as the country's largest patient organisation. The GCS will be involved. In the future, the EHAC concept must also become a baseline element for CPU certification.

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