Pharmacoepidemiological Analysis of Patients with Acute Coronary Syndrome

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Abstract: A pharmacoepidemiological study was carried out in 620 patients admitted to the cardiopulmonary resuscitation and emergency cardiology department of the Bukhara Branch of the Republican Scientific Center for Emergency Medical Aid for 3 years. The frequency of pharmacoinvasive reperfusion and primary percutaneous intervention with complicated and uncomplicated ACS without ST elevation and ST elevation was very low. During treatment, patients were often prescribed convenient medications like low molecular weight heparins (LMWH). According to current clinical guidelines, in patients in the first 12 hours of the disease, the decision to choose primary reperfusion should be made depending on the expected time from the first medical contact (FMC) to a possible primary percutaneous intervention. If this time is less than 120 minutes, the patient must be transported to an angiography laboratory. If this expected time is longer, a TLT should be performed. Treatment of patients with complicated and uncomplicated ACS without ST elevation and ST elevation should be carried out identically and in accordance with current clinical guidelines.

Keywords: low molecular weight heparin, acute coronary syndrome, thrombolysis therapy, pharmacoinvasive reperfusion, primary percutaneous intervention.

Relevance

For several decades, cardiovascular diseases have occupied a leading place in the structure of the morbidity of the population. From year to year, the number of patients with coronary heart disease (CHD), angina pectoris, acute myocardial infarction (AMI) and other forms of acute coronary artery disease in our country is growing [1]. There are no official statistics on acute coronary syndrome (ACS), however, interest in improving methods for its detection and treatment is understandable, since it combines AMI, unstable angina pectoris – disease, as mentioned above, with a high prevalence and risk of adverse outcome [2-7]. So, among patients who were admitted to the hospital with chest pain characteristic of ACS, only in 50% the diagnosis of AMI or unstable angina is subsequently confirmed; while 30-50% of patients with AMI do not have typical chest pain [4]. In the early diagnosis and assessment of the clinical course of acute coronary syndromes, timely identification of the "main" symptoms and / or leading clinical variants of the course of this disease is of great and priority value [13,16]. Such a scientific strategy is necessary to identify risk groups and timely / adequate diagnosis and treatment of acute coronary syndromes (ACS) [4,13,16].

With ACS, an ST segment elevation on the ECG may be observed (a condition observed with significant occlusion of the coronary artery and leading to the development of AMI with an ST segment elevation) [8-12]. Elevation of the ST segment on the ECG may be absent or transient in nature, which according to the results of biochemical tests can be determined as AMI without raising the ST segment or unstable angina. In the treatment of acute coronary syndrome (ACS), drugs that prevent platelet aggregation are of primary importance [14,15]. In the recommendation of the European Society of Cardiology for the treatment of ACS with ST segment elevation and ACS

without ST segment elevation, the use of disaggregants is recommended as a direction for the further prevention of IHD and its complications. The problem of treatment of ACS is also relevant in the Republic of Uzbekistan as well as for all developed countries of the world. Practitioners need reliable and accurate information regarding the assessment of their ability to compare research work with other relevant cardiac resuscitation hospitals of the republic and in other countries of the world. These problems help to solve special pharmacoepidemiological studies that take into account the approaches, types and results of treatment [5-6]. They allow you to more accurately describe the picture of the disease related to the treatment of ACS, to identify the shortcomings of each medical institution in the study region, and also to identify ways of organizing therapeutic and preventive measures for ACS [3,4,5].

Objective: To study the differences in the treatment of complicated and uncomplicated acute coronary syndrome in patients of the city of Bukhara with the help of pharmacoepidemiological analysis.

Materials and methods: 620 patients were admitted to the Department of Cardioreanimation and Emergency Cardiology of the BF RSCEMP for 3 years.

Table 1. Differences in the treatment of patients with complicated and uncomplicated ACS without ST elevation

	Complicated	Uncomplicated	p
Time from onset of symptoms to hospitalization (h)	5,0 (3,3-12,0)*	7,8 (3,0-23,8)*	> 0,05
Cardiopulmonary hospitalization	47,4%	22,2%	< 0,01
Aspirin prehospital	33,3%	53,4%	< 0,05

* - median (1-3rd quarter of distribution)

As can be seen from table 1, the time from the onset of symptoms of ACS to hospitalization (h) in hospital in patients with complicated and uncomplicated ACS was 5.0 (3.3-12.0) and 7.8 hours (3-0-23.8) respectively (P> 0.05). Hospitalization in the cardiac resuscitation department occurs in 47.4% (in patients with complicated ACS) and 27.2% (in patients with uncomplicated ACS), respectively (P <0.01). In the prehospital phase, aspirin therapy was prescribed to patients with complicated ACS with a frequency of 33.3%, with uncomplicated ACS - 53.4%, respectively (P <0.05). There was a difference in treatment with complicated and uncomplicated ACS without ST elevation in patients in a hospital (Fig. 1).
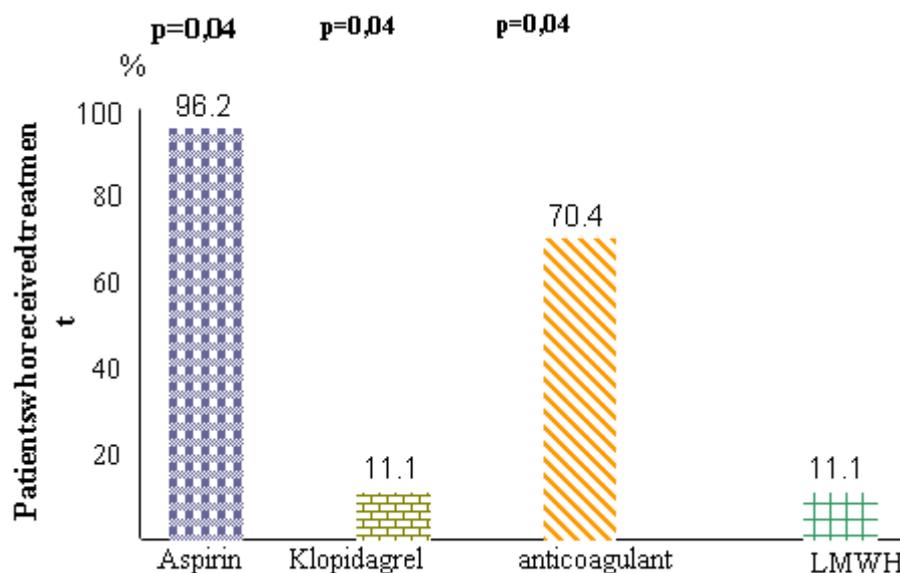
In patient treatment

Fig. 1. Differences in the treatment of patients with complicated and uncomplicated ACS without ST elevation

Different antiplatelet drugs in the hospital were prescribed with the following frequency: aspirin - 96.2%, clopidogrel - 11.1%, anticoagulants - 70.4% and LMWH (low molecular weight heparin) - 11.1%. Table 2 presents data showing the differences in treatment with complicated and uncomplicated ACS with ST elevation in patients.

Table 2. Differences in the treatment of patients with complicated and uncomplicated ACS with ST elevation

	Complicated	Uncomplicated	p
Time from onset of symptoms to hospitalization (h)	5,9 (2,8-13,5)*	4,0 (2,0-8,5)*	0,032
Cardiopulmonary hospitalization	70,3%	56,8%	< 0,05
Aspirin prehospital	53,4%	57,6%	>0,05
TLT prehospital	9,4%	14,9%	< 0,05

* - median (1-3rd quarter of distribution)

Results and discussion: It was noted that patients with complicated and uncomplicated ACS with ST elevation are hospitalized within 5.9 - 4 hours from the onset of the first symptoms of the disease, respectively ($p = 0.032$), with complicated ACS 70.3% of cases, and patients with uncomplicated ACS 56.8% of cases are hospitalized for cardiopulmonary resuscitation, respectively ($p < 0.05$). With complicated and uncomplicated ACS with ST elevation, aspirin was prescribed pre-hospital with 53.4% and 57.6%, respectively ($p > 0.05$), and TLT (thrombolysis therapy) - 9.4% and 14.9%, respectively ($p < 0.05$). In the cardiopulmonary resuscitation department, the frequency of prescribing antiplatelet drugs increases sharply (Fig. 2): • 87.5% of patients are recommended aspirin for the first time 24 hours and 88.6% thereafter; • clopidogrel is prescribed in 28.4% of cases; • the frequency of prescribing anticoagulants is - 94.3%, and NMH - only 7.9%. It should be noted that the treatment noted differs significantly from international clinical recommendations. So, as according to the results of ISAR-REACT-2, a more aggressive course is effective in high-risk patients [Kastral A., 2006].

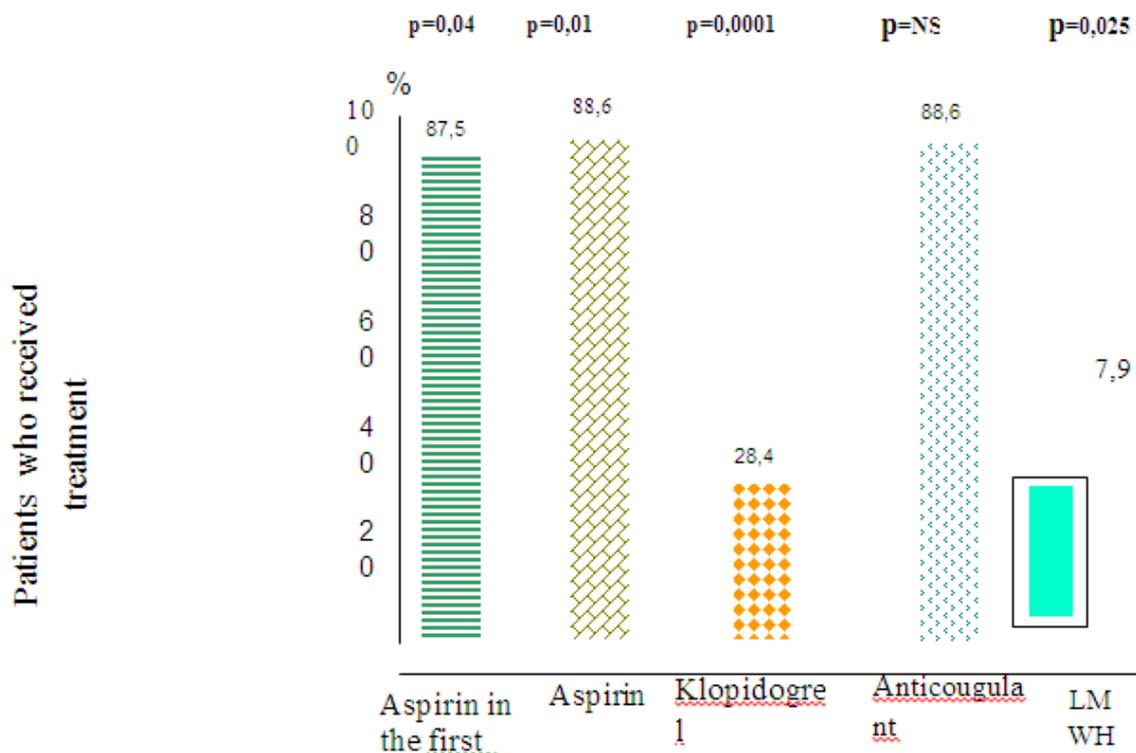**Other inpatient treatment**

Fig. 2. Differences in the treatment of patients with complicated and uncomplicated ACS with ST elevation

Well-known clinical recommendations emphasize the following:

✓ Aspirin should be prescribed as quickly as possible, its initial dose is 162-325 mg;

✓ Clopidogrel should be prescribed to all patients who do not tolerate aspirin;

✓ Anticoagulants are indicated for all patients, as soon as possible after admission to the cardioreanimation department (Enoxaparin sodium, Fondaparinux and bivalirudin - with an invasive strategy, as well as patients with a conservative strategy, either enoxaparin or UFH-unfractionated heparin, as well as Fondapin, should be prescribed bivalirudin) [1,2,3].

Conclusions:

1. Pharmacoepidemiological monitoring in patients with ACS revealed the features of approaches and treatment deficiencies, the degree of compliance with medical practice and existing clinical recommendations.

2. FE monitoring is recommended for mandatory and continuous use both in primary health care and in republican centers for medical emergency care.

3. The frequency of pharmacoinvasive reperfusion and primary percutaneous intervention with complicated and uncomplicated ACS without ST elevation and ST elevation was very low. During treatment, patients were often prescribed convenient medications like low molecular weight heparins (NMCs).

4. According to current clinical guidelines, in patients in the first 12 hours of the disease, the decision to choose primary reperfusion should be made depending on the expected time from the first medical contact (MVP) to a possible primary ChKB. If this time is less than 120 minutes, the patient must be transported to an angiography laboratory. If this expected time is longer, a TLT should be performed.

5. The treatment of patients with complicated and uncomplicated ACS without ST elevation and ST elevation should be carried out equally and comply with modern clinical guidelines.

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