

MACROECONOMICS AND HEALTH: INVESTING IN HEALTH FOR ECONOMIC DEVELOPMENT

The Commission on Macroeconomics and Health (CMH) was established by World Health Organization Director-General Gro Harlem Brundtland in January 2000 to assess the place of health in global economic development. Although health is widely understood to be both a central goal and an important outcome of development, the importance of investing in health to promote economic development and poverty reduction has been much less appreciated. We have found that extending the coverage of crucial health services, including a relatively small number of specific interventions, to the world's poor could save millions of lives each year, reduce poverty, spur economic development, and promote global security.

This report offers a new strategy for investing in health for economic development, especially in the world's poorest countries, based upon a new global partnership of the developing and developed countries. Timely and bold action could save at least 8 million lives *each year* by the end of this decade, extending the life spans, productivity and economic well being of the poor. Such an effort would require two important initiatives: a significant scaling up of the resources currently spent in the health sector by poor countries and donors alike; and tackling the non-financial obstacles that have limited the capacity of poor countries to deliver health services. We believe that the additional investments in health—requiring of donors roughly one-tenth of one percent of their national income— would be repaid many times over in millions of lives saved each year, enhanced economic development, and strengthened global security. Indeed, without such a concerted effort, the world's commitments to improving the lives of the poor embodied in the Millennium Development Goals (MDGs) cannot be met.

In many respects, the magnitude of the scaled-up effort reflects the extremely low levels of income in the countries concerned, the resulting paltry current levels of spending on health in those countries, and the costs required for even a minimally adequate level of spending on health. Because such an ambitious effort cannot be undertaken in the health sector alone, this Report underscores the importance of an expanded aid effort to the world's poorest countries more generally. This appears to us of the greatest importance at this time, when there has been an enhanced awareness of the need to address the strains and inequities of globalization.

We call upon the world community to take heed of the opportunities for action during the coming year, by beginning the process of dramatically scaling up the access of the world's poor to essential health services. With bold decisions in 2002, the world could initiate a partnership of rich and poor of unrivaled significance, offering the gift of life itself to millions of the world's dispossessed and proving to all doubters that globalization can indeed work to the benefit of all humankind.

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Table 2. KEY FINDINGS ON THE LINKAGES OF HEALTH AND DEVELOPMENT

1. Health is a priority goal in its own right, as well a central input into economic development and poverty reduction. The importance of investing in health has been greatly underestimated, not only by analysts but also by developing-country governments and the international donor community. Increased investments in health as outlined in this Report would translate into hundreds of billions of dollars per year of increased income in the low-income countries. There are large social benefits to ensuring high levels of health coverage of the poor, including spillovers to wealthier members of the society.

2. A few health conditions are responsible for a high proportion of the health deficit: HIV/AIDS, malaria, TB, childhood infectious diseases (many of which are preventable by vaccination), maternal and perinatal conditions, tobacco-related illnesses, and micronutrient deficiencies. Effective interventions exist to prevent and treat these conditions. Around 8 million deaths per year from these conditions could be averted by the end of the decade in a well-focused program.

3. The HIV/AIDS pandemic is a distinct and unparalleled catastrophe in its human dimension and its implications for economic development. It therefore requires special consideration. Tried and tested interventions within the health sector are available to address most of the causes of the health deficit, including HIV/AIDS.

4. Investments in reproductive health, including family planning and access to contraceptives, are crucial accompaniments of investments in disease control. The combination of disease control and reproductive health is likely to translate into reduced fertility, greater investments in the health and education of each child, and reduced population growth.

5. The level of health spending in the low-income countries is insufficient to address the health challenges they face. We estimate that minimum financing needs to be around \$30 to \$40 per person per year to cover essential interventions, including those needed to fight the AIDS pandemic, with much of that sum requiring budgetary rather than private sector financing. Actual health spending is considerably lower. The least-developed countries average approximately \$13 per person per year in total health expenditures, of which budgetary outlays are just \$7. The other low-income countries average approximately \$24 per capita per year, of which budgetary outlays are \$13.

6. Poor countries can increase the domestic resources that they mobilize for the health sector and use those resources more efficiently. Even with more efficient allocation and greater resource mobilization, the levels of funding necessary to cover essential services are far beyond the financial means of many low-income countries, as well as a few middle-income countries with high prevalence of HIV/AIDS.

7. Donor finance will be needed to close the financing gap, in conjunction with best efforts by the recipient countries themselves. We estimate that a worldwide scaling up of health investments for the low-income countries to provide the essential interventions of \$30 to 40 per person will require

approximately \$27 billion per year in donor grants by 2007, compared with around \$6 billion per year that is currently provided. This funding should be additional to other donor financing, since increased aid is also needed in other related areas such as education, water, and sanitation.

8. Increased health coverage of the poor would require greater financial investments in specific health sector interventions, as well as a properly structured health delivery system that can reach the poor. The highest priority is to create a service delivery system at the local (“close-to client”) level, complemented by nationwide programs for some major diseases. Successful implementation of such a program requires political and administrative commitment, strengthening of country technical and administrative expertise, substantial strengthening of public management systems, and creation of systems of community accountability. It also requires new approaches to donor/recipient relations.

9. An effective assault on diseases of the poor will also require substantial investments in global public goods, including increased collection and analysis of epidemiological data, surveillance of infectious diseases, and research and development into diseases that are concentrated in poor countries (often, though not exclusively, tropical diseases).

10 Coordinated actions by the pharmaceutical industry, governments of low-income countries, donors, and international agencies are needed to ensure that the world’s low-income countries have reliable access to essential medicines.

Table 3. AN ACTION AGENDA FOR INVESTING IN HEALTH FOR ECONOMIC DEVELOPMENT

1. Each low- and middle-income country should establish a temporary National Commission on Macroeconomics and Health (NCMH), or its equivalent, to formulate a long-term program for scaling up essential health interventions as part of their overall framework in their Poverty Reduction Strategy Paper (PRSP). The WHO and the World Bank should assist national Commissions to establish epidemiological baselines, operational targets, and a framework for long-term donor financing. The NCMHs should complete their work by the end of 2003.

2. The financing strategy should envisage an increase of domestic budgetary resources for health of 1 percent of GNP by 2007 and 2 percent of GNP by 2015 (or less, if a smaller increase is sufficient to cover the costs of scaling up, as may be true in some middle income countries). For low-income countries, this entails an additional budgetary outlay of \$23 billion by 2007 and \$40 billion by 2015, of which the least developed countries account for \$4 billion by 2007 and \$9 billion by 2015 themselves, and the other low-income countries the balance. Countries should also take steps to enhance the efficiency of domestic resource spending, including a better prioritization of health services and the encouragement of community financing schemes to ensure improved risk pooling for poor households.

3. The international donor community should commit adequate grant resources for low-income countries to ensure universal coverage of essential interventions as well as scaled-up R&D and other public goods. A few middle-income countries will also require grant assistance to meet the financial costs of expanded HIV/AIDS control. According to our estimates, total needs for donor grants will be \$27 billion per year in 2007 and \$38 billion per year in 2015. In addition, the World Bank and the regional development banks should offer increased nonconcessional loans to middle-income countries aiming to upgrade their health systems. The allocation of donor commitments would be roughly as follows:

	2007	2015
Country-level programs	\$22 billion	\$31 billion
R&D for diseases of the poor	\$3 billion	\$4 billion
Provision of other Global Public Goods	\$2 billion	\$3 billion
Total	\$27 billion	\$38 billion

The WHO and World Bank, with a steering committee of donor and recipient countries, should be charged with coordinating and monitoring the resource mobilization process. Implementing this vision of greatly expanded support for health requires donor support for build-up of implementation capacity and for addressing governance or other constraints. Where funds are not used appropriately, however, credibility requires that funding be cut back and used to support capacity building and NGO programs.

4. The international community should establish two new funding mechanisms, with the following approximate scale of annual outlays by 2007: The Global Fund to Fight AIDS, Tuberculosis, and Malaria (GFATM), \$8 billion; and the Global Health Research Fund (GHRF), \$1.5 billion. Additional R&D outlays of \$1.5 billion per year should be channeled through existing institutions such as TDR, IVR, and HRP at WHO, as well as the Global Forum for Health Research and various public-private partnerships that are currently aiming toward new drug and vaccine development. Country programs should also direct at least 5 percent of outlays to operational research.

5. The supply of other Global Public Goods (GPGs) should be bolstered through additional financing of relevant international agencies such as the World Health Organization and World Bank by \$1 billion per year as of 2007 and \$2 billion per year as of 2015. These GPGs include disease surveillance at the international level, data collection and analysis of global health trends (such as burden (if disease), analysis and dissemination (if international best practices in disease control and health systems, and technical assistance and training.

6. To support private-sector incentives for late stage drug development, existing “orphan drug legislation” in the high-income countries should be modified to cover diseases of the poor such as the tropical sector borne diseases. In addition, the GFATM and other donor purchasing entities should establish pre-commitments to purchase new targeted products at commercially viable prices.

7. The international pharmaceutical industry, in cooperation with low-income countries and the WHO, should ensure access of the low-income countries to essential medicines through commitments to provide essential medicines at the lowest viable commercial price in the low-income countries, and to license the production of essential medicines to generics producers as warranted by cost and/or supply conditions, as discussed in detail in the Report.

8. The WTO member governments should ensure sufficient safeguards for the developing countries, and in particular the right of countries that do not produce the relevant pharmaceutical products to invoke compulsory licensing for imports from third-country generics suppliers.

9. The International Monetary Fund and World Bank should work with recipient countries to incorporate the scaling up of health and other poverty-reduction programs into a viable macroeconomic framework.

Table 4. RECOMMENDED DONOR AND COUNTRY COMMITMENTS

(billions of constant 2002 US dollars)

	2001 (CMH estimates)	2007	2015
DONOR COMMITMENTS			
<i>Country-level programs:</i>			
Least-Developed Countries	\$1.5	\$14	\$21
Other-Low-Income Countries	\$2.0	\$6	\$8
Middle-Income Countries	\$1.5 ODA 0.5 Nonconcessional	\$2	\$2
of which: Global Fund to Fight AIDS, Tuberculosis, and Malaria	\$0	\$8	\$12

Global Public Goods

R&D	(<) \$0.5	\$3	\$4
of which: Global Health			
Research Fund	0	\$1.5	\$2.5
International Agencies	\$1	\$2	\$3
Total Donor Commitments	\$7	\$27	\$38
DOMESTIC RESOURCES FOR HEALTH			
Least-Developed Countries	\$7	\$11	\$16
Other Low-Income Countries	\$43	\$62	\$74
COUNTRY-LEVEL PROGRAMS IN LOW-INCOME COUNTRIES			
Donor Commitments plus			
Domestic Resources	\$53.5	\$93	\$119

Note: *Recommendations are for annual commitments in a global scaled up program. As stressed throughout the Report, actual disbursements will depend on policy performance within recipient countries.*

NEW TECHNOLOGIES IN CLINICAL ACTIVITIES OF THE HOSPITAL

B.S. Kuralbaev

Innovations in the hospital are diverse. This process can be characterized by the creation of new managerial and clinical activities and the implementation of new modern equipment.

Innovations are systematic in the hospital. /1,2/. Thus, new technology of services to postoperative patients\postoperative care team - was developed and implemented in the hospital in 2002. This team works with postoperative patients during the first day after surgery. It is a sort of a “fast response” group in which it serves the patients with the most severe status. Serious attention is paid to patient education: detailed explanations to the patient why it is important to follow prescribed regimen, nutrition plan, and medicines.

Another innovation includes the establishment of allergology services. Allergic diseases are wide spread. According to different researcher’s report resources, 10 to 50% of the population of different countries suffer from allergies /3 /. Allergology department is outpatient based. It has 8 day care beds, and 2 MDs (allergologist, otolaryngologist, and pediatrician- pulmonologist).

Contemporary diagnostic of the laboratory is an important part of diagnostic and quality improvement for desired outcomes.

For-example, gene- molecular diagnostic is involving more and more tests every year. Polymerase chain reaction method is able to diagnose more than 50 types of viruses and agents. More over, HLA-type tests are conducted at the gene level. The following tests were implemented: RNA, DNA

identification of hepatitis A, B, C, D, G, E viruses, myocardium damage markers identification, it helps to diagnose myocardial infarction during the first few hours.

Identification of glycolized hemoglobin (it is the most important indicator for clinical efficiency of diabetes treatment) is applied in clinical protocols for diabetes. It shows if the prescribed treatment was effective or not.

Allergene analyzer UniCAP 100, can test 100 various allergenes to diagnose different allergy diseases.

An ultrasound scanning is the most developed method over the last decade. It has all the advantages as non-invasive methods and it is highly informative and specific. That makes it indispensable during screening studies as well as for final verification of diagnosis. Our hospital implemented a doppler study of brachiocephalic arteries, upper and lower extremities blood vessels, abdominal aorta and their divisions, parenchymatous organs, placental blood flow and intra fetal blood flow of pregnant women.

Opportunities in the endoscopy department were enlarged due to new purchased videoendoscopy complex. Using this equipment, during last year we conducted 950 esophagogastroduodenoscopies, 444 colonofibrosopies, with termina; ileoscopy, 84 – diagnosticosanation fibrobrochscopies, 38 endoscopic retrograde cholangiopancreatogrphies with extraction of gall-stones, 32 polypectomies and extraction of villous tumors of digestive tract.

We also are able to create a video database for our patients. We have experienced success with inoperable tumors electric resections of rectum in elderly patients and endoscopic extraction of larynx tumors. It is possible due to the high resolution of new equipment and opportunity of visual control by the operating team. It also enables consultative diagnosis verification with involvement of invited specialists with visual assessment of clinical situation.

Innovations on medical equipment acquisition improves healthcare quality for patients. For example, the intensive care department has anti-bedsore beds "Clinitron". It is used for patients with burns that have vast bedsores, acute brain blood circulation disorders, in coma, long-term artificial lung ventilation, disorders of thermal regulation, super cooling. With this bed, the creation of comfortable temperature stabilizes thermal regulation, improves microcirculation, normalize metabolism. Quarts sand that is inside has a disinfection effect, and in combination with warm air flow enables effective prevention of bedsore, and fast epithelium recovery for the patients that already have bedsores. /4/. Utilization of the "Clinitron" bed helped to shorten the rehabilitation process, didn't require additional staff, reduced consumption of bed sheets, and finally reduced the length of stay.

Conclusion. Intensification of the innovation process of the hospital activities provides high quality level of provided health services, creates new managerial and clinical activities, and implements updated equipment.

METHODOLOGY ISSUES OF SCIENTIFICALLY BASED INNOVATIVE DECISIONS WITHIN CLINICAL ECONOMICAL EFFICIENCY FRAMEWORK.

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Implementation of valid mechanisms, new methods and approaches, aimed on health services quality provision and improvement of managerial, scientific information technologies are oriented on efficient economical management in healthcare.

Changes in the area of decentralization, financial deficiency of the sector, that occur at the stages of healthcare reform are necessary for rational interaction of innovative technologies according to objective quality requirements for providing health services together with resource saving and accumulative policy. /1,2/.

Financial resources of healthcare sector of Kazakhstan do not satisfy its needs, and consequently impact the quality of provided health services, reduction of the guaranteed volumes and expanding of fee for services with reduction of free of charge health services. /3/.

Development of legislative base, standardization activities aimed on rational utilization of existing resources is the basis for health services quality provision. More over, development of standards for the primary level provide monitoring and analysis of practical experience, systematization of clinical economical effect. Development of health science, improvement of new diagnostic and clinical methods, rehabilitation and prevention justify utilization of existing resources according to the diagnostic and clinical standards.

Utilization of clinical laboratory tests is logical for development of clinical standards. Integration of scientific potential in the area of clinical economic efficiency research and orientation at social order is appropriate for optimal utilization of financial resources, planning and conduction of research in healthcare. /4,5/.

Development of medical technologies, implementation of computer diagnostic methods, videoendoscopy surgery aids, application of highly effective innovative pharmaceuticals enable improvement of professional knowledge and expansion of clinical research. During 7 months of this year we successfully implemented 64 inpatient and 26 outpatient new diagnostic and clinical methods out of 77 and 31, respectively. List of used innovative medicines consists from 31 items. Basis for new achievements in the area of health science is realized reliable, high quality information support, distributed in the form of publications, fax, e-mail, and the Internet. Improvement of Information technologies enables dissemination of important healthcare data. Methodology of statistic integration of reliable research data is important from the point of view of meta-analysis. Establishment of the

research – information department allows one to conduct search and generalization of international healthcare related information. It also provides an evidence-based approach to execution of the State Program, including the one on standardization.

One of the most complicated methodological problems is cost calculation of health services provision. The reason is inadequacy of health services tariffs, the lack of justified methods of normative cost calculation, etc. It is necessary to consider cost of innovative medicines, additional correction in case of possible adverse reactions, and insufficient positive dynamics of the therapy.

Essential is an issue of medical interventions' effectiveness in economic analysis. The main clinically and socially oriented criteria are life expectancy and quality despite existing statistical indicators of public prosperity level, including public health and healthcare in general. Consequently, we can not suppose that intervention of lower cost will be more appropriate in the achievement of desired the outcome. We need to follow realistic financial possibilities with consideration of comparison of cost/effect coefficient at different technologies. For example, costs of surgical and conservative care. /6,7/.

Thus, importance of clinical economical calculations characterizes improvement of practical research results significance. Improvement of methodology principles of clinical economical efficiency under the conditions of limited financing is closely linked with intensification of new technologies, priority of research.

STANDARTIZATION OF CLINICAL PROTOCOLS OF CHRONIC BRONCHITIS.

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Non specific respiratory diseases are widely spread and hold one of the first position in morbidity and mortality distribution. It also explains its healthcare and social significance. In the distribution of chronic non specific lung diseases (CNLD) chronic bronchitis' (CB) portion is approximately 65%, about 3-8% adult population have it.

CB is chronic inflammatory disease of the bronchial system with constant cough and sputum discharge at least 3 months a year, during 2 and more years. These symptoms are not related to any other disease of bronchopulmonary system, upper respiratory ways and other organs and systems (Okorokov A.N. 2000)

Main CB risk factors are: nicotine smoking (active and passive); age (over 45); air contamination with volatile pollutants; gender (men are more susceptible to CB); unfavorable social and professional

environment; nasopharynx diseases, disorders of nasal breathing; respiratory infections; unfavorable climatic conditions; allergy; and genetic factors.

Main function of respiratory system is breathing. It means conduction of breathing air to lung alveolus and back, cleaning the air from foreign matters, and oxygenation of blood in small blood circle capillaries.

The most frequent subjective symptoms of CB are: cough with sputum discharge, general weakness, sweating. Sputum discharge is the most important symptom. It can be mucous, purulent, mixed, sometimes with blood. In 10-17 % of cases hemoptysis is possible. It happens due to damaged blood vessels of bronchial mucous during hard coughing. This case requires differentiated diagnostic with lung TB, cancer, bronchiectasis, pulmonary thromboembolism, mitral stenosis, cardiac insufficiency, haemorrhagic diathesis. There are no other significant changes in other organs and systems.

Based on available clinical data on CB all laboratory and instrumental tests are classified as follows: obligatory, specific, auxiliary.

Obligatory tests: general for all clinical groups such as Wasserman Reaction (syphilis test), ECG, blood sugar, general blood test, general urine test.

Specific tests: Lung X-rays, general sputum test, TB micobacteria sputum test, bacteriological sputum test with identification of antibiotic resistance, identification of proteins and protein fractions.

Additional test: bronchoscopy, bronchography, lung computer tomography, EchoCardioGrapgy.

Standard tests for chronic bronchitis.

1. General blood test;
2. General urine test;
3. General sputum test;
4. Bacteriological and antibiotic sensitivity sputum test;
5. TB sputum test;
6. Lung x-ray;
7. General protein and its fractions;
8. ECG;
10. Syphilis test;
11. Blood sugar;
12. Atypical cells;

Auxiliary test:

13. Bronchoscopy;
14. Lung computer tomography;
15. Echo cardio graphy;

CB clinical protocol depends on clinical form and characteristics of clinical course. Following is a clinical protocol for CB:

- Determination of ethiological factors:
- nutrition:
- antibacterial therapy during acute stage of purulent CB, including endobronchial infusion of the medicines;
- improvement of drainage function: expectorants, bronchial dilators, positional drainage, thorax massage, physical therapy; heparinotherapy;
- detoxication therapy during acute period of purulent CB;

- breathing insufficiency correction: long term low flow oxygen therapy, hyper baric oxygenation, extra corporal membrane blood oxygenation, inhalation of wet oxygen.
- Pulmonar hypertension treatment
- Immune modifying therapy and improvement of local bronchiopulmonar protection, improvement of nonspecific resistance of the body.
- Physical therapy, breathing gymnastics, massage.
- Post hospital rehabilitation.

Clinical standards for CB patients.

1. Gentamicine 240 mg i\m-7 days;
2. Euphyllin 2,4% 10,0 i\ v № 6;
3. Salin 200,0 i\ v № 6;
4. Berothek 6 mg per day – 7 days;
5. Expectorant tincture 150,0 per day – 7 days;
6. Prednisolone 60 mg i/v – 5 days;
7. Nystatin 2 million per day – 7 days;
8. Breathing gymnastic № 7;
9. Physical therapy № 7;

In order to identify economic efficiency of standardized clinical diagnostic tests for CB we conducted retrospective analysis of 125 medical records of the inpatient patients during 1996-2000. 25 medical records per each year of study were studied. We calculated cost of all laboratory and instrumental tests, consultations, consumed medicines, physical therapy procedures, etc. We calculated average and total amounts spent on diagnostic and treatment of 25 patients a year and per each patient. Data is shown in the tables 1 and 2.

Diagnostic and clinical costs per 25 patients with CB

Table №1.

Years	Costs		
	Diagnostic	Clinical	Total:
1996г.	223548	131600,44	355148,44
1997	188645	126653,83	315298,83
1998	192665	87678,71	280343,71
1999	151427,9	133239,17	284667,07
2000	89319,9	84467,18	173787,8

Diagnostic and clinical costs per 1 patients with CB

Table № 2.

Years	Costs per 1 patient		
	Diagnostic	clinical	Total:
1996	8942	5264	14206
1997	7546	5066	12612
1998	7707	3507	11214
1999	6657	5330	11387
2000	3573	3379	6952

According to the table data it is obvious that in 2000 costs per 1 CB patient were KZT 6952. It is 2,04 times less than in 1996. It let us come to the conclusion that standardization of diagnostic and clinical protocols allows to minimize a cost of diagnostic and clinical procedures having same efficiency.

INFLUENCE OF INTRODUCTION OF NEW LABORATORY TECHNOLOGIES INTO DIAGNOSTIC AND TREATMENT PROCESS OF THE HOSPITAL.

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The "technological revolution" having become the reality at the end of the XXth century showed that in clinical laboratory analytics is an essential scientific and technological progress radically changing the diagnostic possibilities of clinical laboratories. New laboratory technologies determining 18 kinds of hormones, markers of myocardium injuries, markers of A,B,C,D,G,E hepatitis, tumor markers genetic-molecular diagnosis by PCR method are successfully used by us for improvement of the diagnosis and treatment of patients with cardiovascular diseases, endocrine disorders, viral ethiology diseases of liver, with urogenital and other infections.

Introduction of hormone concentration determination by method of immune-enzyme analysis of thyroid and parathyroid glands, hypophysis, adrenal gland, sexual glands into hospital activity improved the diagnosis of endocrine disorders. Of the 2647 of examined tests, 705 detected disorders.

Determination of markers of A,B,C,D,G,E hepatitis — 1096 tests, 150 of them had positive result. Introduction of immunologic markers of viral hepatitis into complex with PCR-method significantly improved diagnostics. With the introduction of PCR-diagnosis it became possible to determine the activity and process of viral hepatitis A,B,C,D,G,TT. Out of the 1549 tests, 394 detected viruses.

Utilization of PCR-method improved the diagnosis of urogenital infections. It helped to identify infections that can't be detected by usual methods. The detection statistics in 2001 is shown below.

Chlamyidium trachomatis — 1241 tests were taken, 831 tests are positive, exposure — 67%; cytomegalovirus infection — 807 tests, 606 (75%) from them are positive; ureaplasma — 674 tests, positive — 305 (45%); mycoplasma hominis — 307 tests, — 60 (19%) positive; genital mycoplasma — 609, positive - 204 (33%); papilloma and condyloma virus — 140, positive — 49 (25%) and so on.

Exposure of tuberculosis of extrapulmonary ethiology was increased, out of the 154 tests, 18 (12%) were detected. Diagnostics of other viral infections — rotavirus (21%), enterovirus (28%), herpes virus types I, II, VI (47%), Epstein-Barr virus (14%), varicella zoster (17%).

Genetic-molecular diagnostics helps to identify susceptibility to hereditary and autoimmune diseases that are determined by HLA-typing method according to the presence of one or another gene in DGB1, DRB1, DGA1 locuses. Forty-nine patients were exposed to this test and genes of diseases like Bechterew's disease, Rayter's disease, rheumatoid arthritis, bronchial asthma, and pancreatic diabetes etc. were detected.

Markers of myocardium injuries were introduced from January 2002. During this period 74 tests to detect troponin T and myoglobin were taken from the patients of resuscitation and other hospital departments. Twenty-six of all tests (36,8%) had positive result. Our practice showed importance of troponin test in case of recurrent infarctions, at expressed phenomena of cardiosclerosis, cardiac rate disorders when electrocardiographic signs are initially changed. The value of these tests in myocardial

infarction diagnosis is conditioned by its raised concentration in blood during the first hours of myocardium injury. In this connection, our hospital's early diagnosis of myocardial infarction is improved.

Laboratory innovations resulted in the increased laboratory tests' effectiveness that relates to hospitals' goals and objectives, as well as improves the speed of clinical diagnostics.

It also benefits in the increase of diagnostic accuracy and reduction of diagnostic period, acceleration of clinical treatment initiation, more accurate control of efficiency of clinical procedures, decreased length of stay, and a decrease in the number of unfavorable outcomes.

IMMUNOPATHOLOGY OF VIRUS MYOCARDITES

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Non-ischemic myocardial diseases (NMD), especially myocarditis, appear to be very essential in cardiology due to the vagueness of pathogenetic mechanisms, etiological factors, and the lack of legible and informative diagnostic criteria.

Ninety-eight patients were involved: 56 males and 42 females (average age $41,1 \pm 1,2$ and $37,7 \pm 1,8$, respectively). 61 patients had myocarditis, mainly caused by virus ($n=56$) and the rest by bacterial infection ($n=8$).

Myocarditis (MK) was confirmed by clinical status, the results of biochemical, serological, virologic studies, as well as ECG.

37 patients had cardiosclerosis (CS) caused by MK that was diagnosed by ECG, taken within 12 months after MK onset.

For all patients the severity of heart failure (HF) was estimated according to the NYHA criteria. The control group consisted of 24 healthy donors. The study was randomized by age and gender.

The immunological phenotyping was performed by monoclonal antibodies – the total amount of T-lymphocytes (T-L), T-L-CD3, T-L-CD4, T-L-CD8, T-L-CD72 was calculated. The functional status of the immune system was defined by degree of expression markers of early activation - antigens CD25, receptors for interleukin-2, and CD71, a receptor for transferrin which is a marker of HLA-DR activation.

The outcomes were expressed by correlation statistics.

The comparison of three groups has revealed that the contents of immunocompetent T-L cells did not differ essentially and statistically. The level of T-L CD4 was decreased by 12.4% in the MK group and had not changed much in the group with CS. The content of T-L CD8 was depressed for 20,16% in patients with MK while the same T-L subpopulation had not changed much in patients with CS (for 6.8%).

Determination of double negative T-L revealed increase of its content for 60,4% in patients with MK ($p<0.05$). Patients with CS had this parameter not statistically changed compared with the base.

Comparative analysis of B-cells found a statistically reliable increase of activated B-cells ($CD23^+$) for 45.8% in patients with MK ($p<0.05$) and for 17.7% in patients with CS it was not statistically reliable. Parameter of activation expressed as ratio of $CD23^+$ to $CD72^+$ B-cells was significantly higher in patients with MK for 89.8% compared with control ($p<0.05$) and for 10.1% in

patients with CS ($p < 0,1$). Patients with MK have statistically proved an increase of T-L CD CD25 and CD71 content, as well as activation markers comparing to control by 96.4 and 57.2% respectively, while patients with CS don't have such significant changes of CD25 but slightly decreased CD71 by 12.1%.

Thus, for the patients with non-rheumatic myocarditis increased amount of T-cells expressing early activation markers (CD25 and CD71), double negative T-cells not contained neither CD4 nor CD8 antigens, as well as rise of B-cells CD23⁺ are referred. Also, patients with non-rheumatic myocarditis have low level of CD4 and CD8 that proved disturbance of immunoregulative function. Patients with cardiosclerosis caused by MK have the same level of cells expressing activation markers as the control group, as well as their regulatory subpopulations.

CHARACTERISTICS OF GLUCOSE INTOLERANCE ELDERLY PATIENTS

G. Tanbayeva

Diabetes in elderly patients is an essential problem. The epidemiological research of Diabetes has shown that the aging of the population is the extremely important factor of the prevalence of Diabetes today. Obesity in elderly people is also a risk factor for type 2 Diabetes. Besides that, low physical activity slows the structure. Frequency of Type 2 Diabetes at the age of more than 75-80 years is more than 20 %, which gives the epidemic character of prevalence of the disease [1]. In past decades the tendency of augmentation of a share of the elderly population all over the world is clearly shown.

In Kazakhstan according to a 1999 census data the number of elderly people older than 60 years for the ten years' period has increased from 1 484 675 (9.2 %) up to 1 605 356 (10.7 %), on 1.5 % in comparison with 1989 [2]. This contributes to the growth of diseases, characteristic to elderly people, one of the most prevalent being type 2 Diabetes [3]. Furthermore, it is known that up to 50 % of Diabetes cases in the elderly are not detected [4].

The correlation of risk factors with development of Diabetes never happens to be 100 %. However, the greater number of risk factors a patient has the higher the probability there is of the development of type 2 Diabetes. On the contrary, chance for detection of Diabetes in an individual without a risk factor is low. Thus, probability of revealing an asymptomatic current of Diabetes in a general population through mass screening is small; however, in groups with high risk the probability is much higher. It becomes very important to choose risk groups on type 2 Diabetes correctly.

The type 2 Diabetes development risk is growing with age, at the presence of obesity and insufficient physical activity.

The purpose of research. To study features and types of the clinical forms of impaired glucose metabolism in old age.

Materials and methods. The research was conducted by examining the level of fasting plasma glucose 2 hours after standard breakfast in 527 patients (250 men and 277 women), ages 60-94 years. These patients on treatment in a hospital concerning cardiopulmonary pathologies which were not observed earlier concerning Diabetes.

Results. At regular scheduled research of fasting plasma glucose was present in only 83.1 % of the patients who had normal parameters, and in 16.9 % of them the hyperglycemia was revealed. The subsequent inspection in 2 hours after an alimentary load has revealed the various forms of impaired glucose metabolism in 12.5 %, and 7.8 % of them who had normal meanings of fasting plasma glucose. On the whole, active inspection of elderly people has allowed diagnosis of Diabetes – at 3.02 %, impaired glucose tolerance – at 9.5 %, impaired fasting glucose – at 14.8 %.

Conclusion. The active implementation of screening in hospital conditions allows to reveal Diabetes and various forms of impaired glucose metabolism at early stages, at which treatment and prophylaxis

of type 2 Diabetes are more effective and favorable. It is one of ways to drop the level and frequency of serious vascular complications of Diabetes.

Key words: Diabetes, Screening of Diabetes, postprandial glucose.

PREVENTION AND TREATMENT OF THE INTRADIALYSIS HYPOKALYEMIA

J.M. Tuleuov, D.M. Kaltayeva.

One of the main problems arising at carrying out a hemodialysis is the risk of this procedure, which is accompanied by a hypokalemia. The term intradialysis hypokalemia means a group of symptoms and clinical parameters, such as, bad state of health, muscular weakness, cramps, spastic strictures of muscles of the lower extremities, paraesthesia, nausea, vomiting, ventricular tachycardia, down to a fibrillation. These symptoms might be closely connected to a stroke due to potassium level in a blood plasma (normal concentration is 3,5-5,5 mmol/l).

The large gradient of potassium concentration is important to maintain a difference of the cell membrane potentials hence the endo cellular potassium concentration is higher than extra cellular one. The reaction of muscle and nerve action largely depends on a trans-cellular potassium gradient. Sharp changes of potassium homeostasis result in deep infringements of neuromuscular transfer. The infringements of heart conducting system are accompanied by ventricular extrasystoles, tachycardia, fibrillation. The hypokalemia also is shown as muscular weakness, cramps, nausea, vomiting, paraesthesia.

An intradialysis hypokalemia is a dangerous life condition, which requires immediate restoration of the potassium level in a blood plasma. The organism of the patient with chronic kidney failure is adapted to the increased potassium level in a blood plasma because of the infringement of the egestion kidney function for a long time. Thus, the allowable low potassium level in a blood plasma at the patients with chronic kidney failure is more than it is in an organism of the healthy person. According to our observations, during a down stroke of potassium level in plasma lower than 3,8 mmol/l during a haemodialysis session, where patients feel tachycardia, anxiety, paraesthesia in the lower extremities, and muscle cramps. Hypokalemia was observed at 10-12 of % of the total number of the patients that had hemodialysis.

Cause of intradialysis hypokalemia are:

- standard haemodialysis with the initial normal or low contents of a potassium in plasma,
- prolonged haemodialysis with concentrates containing low potassium level,
- high-flow haemodialysis.

To prevent hypokalemia during haemodialysis we used concentrates that contain potassium 3,8 mmol/l. At initial hyperkalemia, the haemodialysis is carried out with the standard contents of a potassium (2,0 mmol/l). Two hours later the standard concentrate is changed to a concentrate containing 3,8 mmol/l of potassiums.

Our results showed that out of 62 cases of the 102 hemodialyses, utilization of a concentrate containing 3,8 mmol/l of a potassium for dialysis liquid prevents intradialysis hypokalemia.

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MINOR INVASIVE SURGERIES AND AID UNDER ULTRA SOUND CONTROL.

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Minor invasive interventions in abdominal surgery are performed under the control of ultra sound equipment in real-time mode with utilization of either puncture linear sensor, or puncture nozzle on sector or conventional sensor, and necessary surgical tools.

Transecutaneal transhepatic cholecystostomies can be performed under the control of computer tomography and nuclear-magnetic resonance equipment. However, an ultrasound method is used wider due to low cost, simplicity and safety.

We would like to show in our message opportunities that ultrasound method allows to use in clinical protocols for a number of hepatopancreobiliar zone diseases and other pathologies.

In our hospital during 1997 – 2001 years 115 transcutaneal transhepatic punctures with gull bladder sanitation were performed.

All interventions were performed under the condition of surgery block and followed the aseptic and antiseptic rules. Selection of safe trajectory and constant visual control for puncture needle and drainage tube was conducted via ultrasound equipment with linear puncture sensor. Indications to transcutaneal transhepatic puncture of gull bladder are as follows: acute cholecystitis, gall bladder hydrops, gallbladder empyema, obstructive jaundice, bile hypertension, during acute pancreatitis within the patients with other diseases, at elder age, who have high anesthesiology or surgery risk.

Methodology

Transhepatic puncture is conducted by needle catheter on front axillary line at projection of upper one third of gallbladder under antibacterial treatment, local anaesthesia, and ultrasound control. Then rolled

(not less than 360 degrees) metal conductor is pulled through the catheter to provide stability of the drainage during the procedure.

Then a drainage of enough length is administered to the gallbladder lumen through the conductor. Metal conductor is removed and gall is aspirated. At the same time an ultrasound control of administration of 20-25 milliliters of 0.25% Novocain solution or Furacillin. At that point a monitor shows an effect of ultrasound cavitation. Drainage tube is tightly fixed to the skin. If the puncture will be performed through the gallbladder fundus or extrahepatically then it will lead to catheter falling out and possible gall discharge to abdominal cavity.

Later gallbladder cavity is lavaged with antiseptic solutions and antibiotics. Catheter stays in gallbladder cavity from 3 to 10 days, depending on the patient status and can be replaced if it is malfunctioning or damaged.

A procedure was successfully performed from the first effort within 101 of 115 patients. Average time of the procedure is 20-30 minutes. Average age of the patients is 70-92 years old, number of men and women is approximately equal. This procedure allowed to temporarily improve obstructive jaundice of 23 patients in order to conduct further radical endoscopic or regular surgery procedure such as revision and extraction of the obstructing cause. Other 92 patients had various forms of acute cholecystitis, however due to concomitant disease or severity of the state couldn't have surgery under general anesthesia. All patients had gallbladder lavage with solutions of warm 0.25% Novocain, saline with kanamycin, dioxidine, 1% chloramines 3-5 times a day. At the same time general antibiotic, detoxication and symptomatic therapy were performed. After the procedure all patients showed reduction of blood leucocytes, stabilization of biochemical blood indicators, improvement of general state, normalized body temperature, and pain syndrome relieved. Control Ultrasound exams showed relief of inflammation in gallbladder and surrounding tissues. After certain time 43 patients had planned laparoscopic cholecystectomy with positive clinical results.

Transcutaneous transhepatic cholecystostomy might cause complications like bleeding at puncture point, perforation of gallbladder wall, bleeding to the gallbladder cavity, cholerrhea.

Minor invasive surgeries under ultrasound control can also be used to treat other diseases like uncomplicated kidney and liver solitary cysts, small haematomas, encapsulated supra- and subhepatic leaks.

Thus, minor invasive surgeries under ultrasound control should take place in urgent care. This method is simple, safe, effective and low cost. Can be effectively used for the elderly patients with burdened anamnesis, with acute cholecystitis or obstructive jaundice, hepatic insufficiency, that can not be operated. These interventions can be used as a first stage that allows to ease patients' state or as a basic stage that will liquidate pathology process.

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LAPAROSCOPIC APPENDECTOMY

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Research Objective: to improve clinical outcomes for the patients with acute and chronic appendicitis.

Laparoscopic appendectomies have been performed in the Central Clinical Hospital since 1996. Five hundred and twenty-eight appendectomies were performed during the period 1996-2001, 370 (70%) of them were conducted using the laparoscopic method. Ages of the patients vary from 14 to 86. From year to year a portion of laparoscopic appendectomies is increasing. In 2001 it was 84% of total number of appendix extraction surgeries. However, it is important to note that selection of the surgery method should be strictly based on each case. While performing laparoscopic appendectomies and gaining more experience, we developed indications and contradictions to this procedure. Further improvements are expected in methodology, and its qualitatively associated technologies such as anesthesiology administration for this process.

In clinic we use the method of clipping appendiceal stump with electric coagulation of mesentery and appendiceal stump according to our own method. Sanitation and drainage of abdominal cavity is implemented laparoscopically, and appendix is extracted in a container through trocar. Recently we used the traditional (laparotomic) method for appendix extraction in the following cases:

1. Clinic of acute appendicitis complicated by generalized peritonitis.
2. Disease lasts more than 2-3 days, with signs of complicated diagnosis.
3. Laparoscopic damage of gangrenous or perforated appendicitis with peritoneal process.
4. Marked signs of typhlitis
5. Laparoscopic diagnosis of appendiceal infiltration abscess.
6. Technical difficulties that occur during laparoscopy (bleeding, peritoneal commissural process, possible perforation of appendix, retroperitoneal location).
7. high risk of cardiac-pulmonary decompensation during pneumoperitoneum and intubation narcosis.

Postoperative complications after laparoscopic appendectomy occurred in 8 patients (1.8%). These patients were operated with destructive appendicitis forms. Suppuration occurred in 3 cases, infiltration in right iliac area in 2 cases, abscess of right iliac area and small pelvis in 2 cases. There was 1 case of generalized purulo – fibrinogenous peritonitis during 3 days after laparoscopic appendectomy of gangrenous appendicitis complicated with diffuse peritonitis. There were no lethal outcomes of laparoscopic appendectomy registered.

Utilization of laparoscopic surgery has an important economic impact, because there is lower intensity of pain syndrome, and significant reduction of postoperative complications. It helps to reduce consumption of pharmaceuticals, length of stay, and promotes early rehabilitation of the patients with good cosmetic effect.

Thus, laparoscopic appendectomy has a number of advantages, such as minor intervention, possibility of simultaneous surgeries, and early rehabilitation of the patients.

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DIFFERENTIATIVE DIAGNOSTIC OF ACONITE POISONINGS.

S.T. Koshanaeva . G.D. Veretelnaya, S.R. Akimbekova

Aconite poisonings are one of the most severe poisoning conditions. The basis of our research is linked with the fact that Jungar aconite (Issyk-kul root and other plants of yellow-cup family) is widely spread at the territory of CIS. It can be found in wild nature as well as in gardens and park as a decorative plant. The poisoning agent is alkaloid aconitin ($C_{34}H_{47}NO_{11}$). It is classified as one of the most toxic alkaloids, it has nicotin like effects, including cardiotoxic and arrhythmogenic ones. [1].

Existing research data [1.2.3] describe aconite poisoning as a cardiotoxic effect of Issyk-Kul root. In most of the cases poisonings are accidental. There is data on transcutaneous aconite poisoning during long lasting contact with the plants of the yellow-cup family [1]. Clinical sign of an aconite poisoning is high toxicity that leads to fast developing malignant arrhythmia and cardiac arrest, paralysis of breathing center. Lethal dose is 0,003– 0,004 grams.[2]

According to the National Toxicology Center of Kazakhstan aconite poisonings were 52% of all plant origin poisons and 0.6% of all poisonings in 2001. [4]

Objective of our research was to study two aconite poisoning cases. In one case diagnosis was clear, because there was a link between accidental consumption of tincture and clinical signs (complicated rhythm and breath disorder with developed apnoe) In the other case diagnostic was difficult and late, because patient didn't mention consumption of any medication.

Conclusions:

1. We first described diagnosis of aconite poisoning as a food toxic infection.
2. Sudden joining of arrhythmia against a background of the symptoms of food toxic infection confirms poisoning by cardiotoxic substance – aconite.
3. Aconite poisoning is the most acute pathology that is lacking algorithms of differentiative diagnostic. It leads to unnecessary procedures at a pre hospital stage (such as gastric lavage, call and waiting a resuscitation team), and finally cause death of the patient.

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ISSUES ON DIFFERENTIAL DIAGNOSIS OF ACUTE PNEUMONIA AND PULMONARY TUBERCULOSIS IN ELDERLY AND SENILE PATIENTS

G.S. Zimanova, G.R. Izbasarova, Sh. Ajupova, G.N. Culmukhamedova

The wide application of antibacterial drugs in clinical practice during the last 50 years, high genetic variability of microorganisms and also serious socio-economic shock at the end of 20 th century on the territory of former Soviet Union have led to increased morbidity rate of tuberculosis and other infections.

As before, an acute pneumonia is one of the most frequently diagnosed diseases for people in a vulnerable age.

Five-hundred and thirteen patients were analyzed, of which 203 were elderly {60-74 years old} and 104 senile {over 75 years old} patients were observed.

Study also included 45 young {16-34 years old} and 161 adult {35-59 years old} patients as the comparison group.

The diagnosis "Pneumonia" was based on clinical, laboratory, and X-ray investigations.

Frequently elderly and senile people have local and diffuse pneumosclerosis that create difficulties in finding fresh infiltrative shadows.

According to DOTS strategy all patients' sputum was examined to explore the tuberculosis agent.

Sputum tests were taken three times and conducted by bacterioscopy and other bacteriological methods. Another tests of sputum, bronchial washing water, pleural liquid and also diagnostic test Mantu were prescribed to patients without positive dynamic according to the clinical, laboratory, X-ray data after 2 weeks of active antibacterial therapy for the patients who have had tuberculosis in the past and also have had residual changes such as local calcinations in lung, pleura, focal fibrosis and cirrhosis.

Clinical signs like prolonged {more than 5 days} hyperthermia, haemoptysis, TB signs in the lungs were observed more frequently in the groups of elderly and senile aged people.

Elderly patients showed exudative pleuritis more often.

The elderly group also demonstrated zero or even negative dynamic of infiltrative shadow in the lungs 2 weeks after antibacterial, desintoxicative, resorption therapy.

Patients of this group required additional antibacterial therapy to achieve positive clinical, X-ray, and laboratory changes.

Anti-TB test therapy (phtivazide, isoniazide during 2 weeks) was applied in this group more often. It also brought considerable regress of clinical, and X-ray data in cases of prolonged pneumonia.

After being discharged from the hospital, a local physician and TB specialist monitored the patients. Regular clinical, X-ray and bacteriological test were taken in the outpatient clinic where the patient was assigned.

Thus, differential diagnosis of pneumonia and tuberculosis in elderly and senile ages is significantly troublesome. It requires further study of anamnesis characteristics, clinical, laboratory x-ray tests and development of updated diagnostic and clinical protocols.

DIFFICULTY OF ACUTE APPENDOCITIS DIAGNOSTIC UNDER THE CONDITIONS OF KIDNEY PATHOLOGY

F.N. Nusipova, Z.A. Nusipbaeva, N.D. Nazarenko

At pre-hospital stage, 3-4% of the patients have urogenital pathologies, and 1% of them are renal colic. These conditions require urgent diagnostic, differential diagnostic, emergency care and urgent hospitalization.

Renal colic is an acute pain in the lumbar area and lateral abdominal sections. It can be one or two-sided with well-marked irradiation to abdomen, along urethra, and genital organs. [1,3].

Renal colic attack can start suddenly, which might be caused by physical exercise, as well as during sleep, after abundant drinking. Pain is sharp with periods of calm and exacerbation. Often it might last several days. Pain is usually accompanied by frequent vesical tenesmus and sharp pain in the urethra. By the end of the attack urine might contain an increased number of erythrocytes and leucocytes. Some patients might have nausea and vomiting, dizziness and the urge to defecate due to irritation of the solar plexus and peritoneum. Long-term colic might cause an increase in arterial blood pressure, and body temperature if the patient has pyelonephritis. [2,3]

The diagnosis is confirmed by typical pain attack, the appearance of macrohematuria, and urinary syndrome.

Differential diagnostic is not usually difficult, however some symptoms might be low-grade or lacking, pain irradiation might be atypical. If the colic is right-sided we should exclude appendicitis.

The case study we followed had an urgent need in differential diagnosis. The patient, a 41 year old male, had a diagnosis of chronic 2-sided pyelonephritis. In June 2001 he was diagnosed with a urinary stone in the left urether. He was hospitalized and after he was released he felt relatively good. In July 2002 after an acute respiratory viral infection he got blood in his urine that stopped independently. The patient did not go to see a doctor and did not take any medicine. Ten days later he got a dull ache in the right lumbar area, without irradiation. The patient took 2 tablets of No-spa and went to the office. At the end of the day the ache appeared again, and was more intense. He was

examined by urologist and was given the following prescription.: no-spa 2.0 i/m, analgin – 2.0 i/m. The pain was reduced and the patient went home. That night his body temperature increased to 38⁰ C, the pain intensified and became generalized. Patient also had nausea and vomiting. Considering diagnosis of chronic pyelonephritis patient was delivered to the urology department with a diagnosis “right renal colic, acute stage of chronic pyelonephritis”. In the hospital the pain attack wasn’t relieved during the 24 hours, and pain was generalized and more intense. Patient was transferred to surgical department and had an extraction of acute gangrenous appendicitis.

Thus, if the patient has urolithiasis, pyelonephritis and renal colic in the anamnesis, then the diagnostic of acute appendicitis might become difficult. This case is a bright example of difficulties in acute appendicitis diagnostic under the conditions of chronic kidney pathology.

EPIDURAL ANESTHESIA DURING SIMULTANEOUS SURGERY.

E.A. Kildibekov, M.A. Aigojin, E.S. Childebaev,
G.P. Jarova, G.R. Izbasarova, B.M. Kurmanaeva

Regional anesthesia is now popular after a decline caused by implementation of different types of general anesthesia. According to research literature in this field, a portion of regional anesthesia is 15-45% of the total number of anesthesia in healthcare facilities.

Discovery of opiate receptors and their endogenous ligands, implementation of non opiate adrenergic mechanism of pain regulation concept, and wide application of epidural and spinal anesthesia with narcotic analgesic and central adrenergic agonists, promoted a new stage of anesthesiology development. /1,5/.

Regional anesthesia became a regular topic in many research conferences. To name a few: “Modern issues of spinal epidural anesthesia” (Ekaterinsburgh, St.-Petersburg, Moscow, Perm), Annual Conference of European Association on regional Anesthesia. Journal "Regional Anesthesia" published articles on mass production of effective and low toxic regional anesthetics, aprotic and biologically inert polymers, disposable kits for epidural and spinal anesthesia significantly improved interest of the specialists to regional methods of anesthesia.

Simplicity of execution, minimal amount of complications if all rules are obeyed, accessibility in healthcare facilities of every level, low cost provide wide implementation of regional methods of anesthesia in practical healthcare. /1,3,4/. Recently many authors advocated wider application of regional anesthesia, as well as its combining it with general anesthesia (Svetlov V.A. et al, 1995; Rogozin et al, 1997; Strelets et al, 1997). Currently epidural and spinal anesthesia are applied in conjunction with complex surgery and anesthesia risk, including elderly patients (Svetlov V.A. et al, 1997, Neimark M.I., 1998; Kida et al, 1999). The most widely used is epidural anesthesia during surgery and for postoperative anesthetization. Epidural anesthesia with conserved spontaneous breathing is applied in surgery intervention in abdominal cavity (without diaphragm innervation), in urology, orthopedic surgeries, surgeries on aorta and blood vessels of lower extremities. /1,2/.

However, there is no research on epidural anesthesia application with coverage of all three levels of abdominal cavity in the surgery on more than two different organs. We would like to show an

example of long-term epidural anesthesia with a catheter, with conserved spontaneous breathing in simultaneous surgery in three levels of the abdominal cavity. A female patient, 54 years old had a diagnosis: rectum cancer. She also had cholelithiasis, chronic calculous cholecystitis in remission stage, stomach polyp, multiple uterine fibroid tumor and a mixed form.

On September 26, 2002 the patient was operated according to an operation plan. Catheter was inserted to the right subclavian vein, and infusion system was connected. Puncture and catheterization of epidural area was performed by standard method with disposable kit and standard needle (1.3 millimeters diameter) Catheter was inserted cranially by 3 centimeters. Test dose: 80 milligrams of isobaric 2% lidocain solution.

The following surgical interventions were performed: Laparotomy, cholecystectomy, supravaginal uterus amputation, abdomino-anal resection of rectum and brining down an intestinal system to the anal canal.

During all surgery stages hemodynamics of the patient was relatively stable. After surgery she was transferred to recovery unit fully conscious with spontaneous breath and stable hemodynamics.

Duration of surgery was 5 hours 15 minutes, duration of anesthesia – 5 hours 30 minutes.

Conclusion:

1. The above mentioned type of anesthesia can be realistically used during major (3 levels of abdominal cavity) surgeries, including simultaneous ones (i.e. involving surgical interventions to more than 2 organs) if technique of epidural anesthesia is strictly followed, and adequate, balanced infusion therapy is performed.
2. This type of anesthesia is technically complicated, but safe and reliable in terms of patient organism protection from postoperative stress. Extended regional blockade provides strong protection from pathology reflexes from surgery zone and recover intestinal peristalsis.
3. Conservation of spontaneous breathing and exclusion of breathing function “prosthesis”, i.e. utilization of artificial lung ventilation with intubation of trachea, prevent development of respiratory complications than the significant impact on patient rehabilitation in postoperative period.

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APPLICATION OF ARTIFICIAL LUNGS VENTILATION TO PATIENTS WITH A RESPIRATORY DISTRESS SYNDROME.

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B. Kurmanaeva, M. Aigojin, R. Ospanova, E. Tchildebaev, E. Kildibekov.

Respiratory distress syndrome of adults provokes acute respiratory deficiency. The mortality from this condition varies from 50 % to 90 % according to various authors. (Beumann W.R. et al, 1986). The primary goal of an intensive therapy of distress syndrome of adults is an optimal delivery of Oxygen to the lungs. Maintenance of adequate gas exchange is generally achieved by early transfer of the patients to Artificial lungs ventilation (stage II - III) according to V.Gologorskiy, 1986. In order to achieve this goal we used new updated respiratory models. To maintain an adequate gas exchange we have offered new approaches to implement artificial lung ventilation. CMV and SIMV with PEEP from 5 to 15 mm of a water column were used on both devices.

The CMV and PEEP regimens provided good Oxygenation at heavy current of the disease. Occurrence of spontaneous respiration allows transfer to SIMV with PEEP. It justifies itself just at initial stages of the sanction of processes of a lungs edema, a set of symptoms "rigid" and "wet" lungs, independently allows the patient to adjust volume and duration of an inspiration and an exhalation. SIMV regimen is used for training the patient and transferring him to independent respiration. It is proved, that at the above described regimens of artificial lung ventilation excess of pressure on an inspiration more than 40 mm of a water column provoked a hypoxia, hypercarbia and an acidosis. Optimization of a gas exchange was achieved by individual selection of regimen Artificial ventilation of lungs, parameters of frequency of respiration, respiratory volume and PEEP, and PEEP did not exceed 5-8 mm of a water column. Hyperoxygen respiratory admixture used for Artificial ventilation of lungs had a variation from 0,4 to 0,7. We have found out, that regimen SIMV with PEEP results 5-15 mm of a water column in optimization of the acid-basic condition of blood gases and normalizes a hemodynamics. Efficient treatment of Respiratory distress syndrome of adults substantially depends on well-timed transferring of the patient to artificial lung ventilation. Thus development and introduction of new methods of artificial ventilation of lungs with use of modern oxygen breathing apparatuses and Anesthetics Chloroformium in practice has allowed the removal of all patients from respiration

apparatus with sanction of respiratory distress syndrome of adults as patients with serious surgical pathology.

BIOMARKERS OF MYOCARDIAL DAMAGE – RECENT DIAGNOSTIC TECHNOLOGIES

B.S. Seidualiyeva, B.S. Kuralbayev, Zh.M. Kusymzhanova

Myocardial infarction (MI) is one of the most complicated and serious problems in healthcare. Recent statistics show that this severe disease causes 53.7 % of the death from total mortality statistics. At the present time there is a new perspective in the diagnosis of MI due to the infusion of new technological possibilities and introduction of determination of myocardial damage biomarkers [1]. Current menu of laboratory tests of MI diagnosis include:

1. Determination of troponin T and I
2. Determination of myoglobin
3. Determination of activity of myocardial fraction CK-MB
4. Quantitative content of CK-MB mass
5. Determination of CK-MB isoforms
6. Determination of myosin
7. Determination of binding protein fatty acids

Utilization of diagnostic methods of total CK, LDG (including iso enzymes), AST as MI markers currently is not recommended due to its low specificity level.

On the other hand, efficiency of troponin complex to reflect even the minimum myocardial damage, and its high specificity and sensitivity in many respects serves as the basis for reconsideration as a MI diagnostic procedure.

For short-term ischemia without myocardiocytes, necrosis doesn't lead to an increase of troponin level. It is shown that with necrotic, developing myocardiotroponins join the peripheral blood and can be determined after 5-9 hours reaching peak during the first 12-24 hours and being preserved in blood up to 14 days.

Both European Society of Cardiologists and American College of Cardiologists agree that even the minimum necrosis in myocardium bears an additional coronary risk, and any ischemic necrosis irrespective of its size should be determined as “myocardial infarction”. It can be diagnosed based on an increase of troponin T (TnT), or I (TnI) or CK-MB mass in combination with one of the states below: MI clinical picture, development of pathologic wave Q or ischemic changes of ECG [2].

Lately it is determined that about 50 % of MI cases don't have characteristic changes on ECG, and from 4 % to 8 % of patients are discharged from healthcare institutions with undiagnosed acute MI [3]. Myocardial infarction can be classified according to ECG signs as follows:

1. MI with elevation of ST segment (STEMI).
2. MI without elevation of ST segment (NSTEMI).

In connection with the appearance of highly specific markers of myocardial damage TnT it was proposed to use biochemical signs as the main parameters for diagnostics, and the clinical presentation and presence or absence of changes in ECG as the auxiliary parameters of diagnostics [4].

Recently test systems for express detection of TnT and myoglobin on CARDIAC-RIDER analyzer are used in clinical practice of our hospital.

This method detects TnT in venous blood with the help of monoclonal antibodies on special immunochromatographic bands. For diagnosis venous heparinized blood at amount of 150 µL is used. The tests are evaluated with the help of the cardiac-rider within 15 minutes. In this case the content of TnT in blood at the amount of 0.1 mg/ml and more is considered as a positive result meaning damage of myocardiocytes.

Seventy-four patients from intensive-care and other hospital departments were evaluated for TnT and myoglobin content in blood. The aim of examination was to determine the significance of quantitative express-test for TnT and myoglobin at MI diagnosis. All patients were over 50 years old. Main causes of their hospitalization were as follows: IHD, quickly progressive angina pectoris (n=14); IHD, slowly progressive angina pectoris (n=29); arterial hypertension (n=4); acute MI (n=20); IHD, recurrent small-focal MI (n=3); IHD, large-focal MI (n=2); exacerbation of chronic cholecystopancreatitis (n=1); myocarditis (n=1).

The presence of MI was confirmed by ECG in 21 patients. The results of troponin test and myoglobin were positive in 26 (36.8 %) patients. Patients with acute MI – 20 (76.9 %), those admitted to hospital with quickly progressive angina pectoris – 1 (3.8 %), in patients with recurrent small-focal MI – 3 (11.5 %) and with recurrent large-focal MI – 2 (7.7 %).

Thus, 26 out of the 74 patients MI were verified, and in 48 cases– suspicion of MI were rejected. In cases when recurrent MI developed in place of old scarring, there were complexities in interpretation of ECG indices due to expressed postinfarction diffuse cardiosclerosis. In this case troponin test in 6 patients was positive.

The following are our clinical observations.

Patient B., 58 years old, medical record No 3447, was admitted to the hospital urgently with the diagnosis: IHD, quickly progressive angina pectoris, postinfarction cardiosclerosis.

In anamnesis – old myocardial infarction in 2000. The given deterioration with increase of retrosternal pain 2 days prior to hospitalization. Objectively: cyanosis of lips, face, tongue. On ECG – instability of coronary blood circulation at lateral wall, cicatricial changes of posterior and lateral wall. At laboratory examination test for troponin and myoglobin appeared to be positive (0.33 ng/ml and 320 ng/ml). From traditional laboratory indices there was moderate leukocytosis $9.5 \cdot 10^9$, small increase of LDG – 702 units/l, KFK – 1366 units/l.

On the basis of the clinical and instrumental data as well as the indicators of laboratory examination following clinical diagnosis was identified: IHD, recurrent small-focal high lateral myocardial infarction. After adequate treatment the patient was discharged from the hospital in a satisfactory condition.

Patient R., 79 years old, case history No 4582, was admitted to hospital with diagnosis: IHD, exertional angina pectoris, diffuse cardiosclerosis. Hiatus hernia.

With deterioration of the patient's health condition was transferred to the intensive-care department. ECG showed diffuse cardiosclerosis, MI in the area of old scarring, which was confirmed by drastically high index of TnT – 1.5 ng/ml and myoglobin – 193 ng/ml is not excluded. On the basis of these data the following clinical diagnosis was identified: IHD, recurrent large-focal posterior with spread to apical and lateral myocardial infarction on the background of postinfarction cardiosclerosis.

It should be noted that our practice showed indispensability of troponin test in the case of recurrent infarctions, cardiosclerosis, cardiac pathologies when ECG data are initially changed.

According to our analysis as well as to the results of other researchers [5], the earliest biomarker was myoglobin which increased at MI in 2-4 hours and rapidly decreased on the second day whereas TnT increased after 5-9 hours, reached high numbers on 1-3 days and was retained for a long time. But, at the same time, within examined group, in 5 patients only myoglobin concentration was increasing, and TnT didn't increase. These patients include postoperative patients and patients that had injections during a long period of time that testifies low specificity of the given test to cardiac muscle.

Consequently, in comparison to other markers of myocardial damage, TnT has the best specificity indicators. Though sensitivity of troponin T in early hours of MI yield to myoglobin its diagnostic value with regard to specificity exceeds such value in myoglobin. The optimal way would be to use two cardiomarkers for diagnosis of myocardial infarction – myoglobin as the “early” marker and troponin T as the “late” marker with high specificity.

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VARIANTS OF THE RHEUMATOID ARTHRITIS COURSE IN THE TERRITORY, WHICH HAS UNDERGONE TO COMBINE RADIATION INFLUENCE

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The majority of rheumatic diseases (RD) are considered as multifactor diseases, formation of susceptibility to which is caused by an influence of many genetic and harmful external agents [3].

The high importance of genetic factors in autoimmune pathologies proves to be true in quasi-continuous model. Participation of an environment agents is necessary for realization of genetically caused predisposition to RD development, including rheumatoid arthritis (RA). Alongside with such a widespread influences as a superfluous solar irradiation, cooling, stressful situations, it is necessary to consider an opportunity of ionization radiation influence on the diseases development which is based on autoimmune dysfunctions [4].

The fact of somatic effects development under the influence of various kinds of radiations may serve as theoretical basis for such researches. These cases depend on an irradiation of an individual or are genetic damages of posterity owing to radiating influence on germinal cells [7].

Taking into account the above-stated, we investigated features of a clinical picture of RA at inhabitants of Semipalatinsk region of East Kazakhstan who lived in long-term combined radiation conditions owing to activity of nuclear range in this territory.

Materials and methods of research

Character of clinical course of RA was analyzed in 516 patients of rheumatological department of Semipalatinsk regional clinical hospital in 1980-1993, which lived in Semipalatinsk region constantly. The diagnosis of RA was corresponded to criteria of the American rheumatological association (1987) [8].

The standard complex of clinical, radiological, laboratory researches was carried out for 388 females and 128 males who were from 20 till 64 years old with duration of disease of 2,5-11 years. 298 sero-positive and 218 sero-negative patients were surveyed.

Polyarthritis was the most often clinical form of disease - in 317 patients, polyarthritis with visceritises - in 199 patients. 475 surveyed had slow-progressive course, 41 patients had fast progressive disease course.

Results and discussion

Various rheumatic diseases were diagnosed according to criteria of the American rheumatological association in 1301 patients who were hospitalized to rheumatological department of Semipalatinsk regional clinical hospital in 1983-1993.

The first place in the structure of RD in this region had rheumatism (47,5%), the second place in frequency of initial hospitalization had rheumatoid arthritis (39,7%), patients with systemic lupus erythematosus (SLE) took the third place (6%). Behterev's disease (3,8%), system sclerodermy (2,5%), periarteritis nodosa (0,2%), dermatomyositis (0,1%), mixed rheumatic diseases (0,1%) followed in decreasing order (fig. 1).

The significant amount of patients with various autoimmune diseases is concentrated here as the rheumatological department in Semipalatinsk is the only department in this area that provides the specialize help for rheumatic patients. As severity of systemic lupus erythematosus course and RA course which demands hospitalization, is significant, quantity of the patients who were not including in supervision, was minimal.

During research we have established, that 55,1% of RA patients were 30-49 years old, 35,8% - 50-69 years, 9,1% - 20-29 years. Primary defeat of females (75,2%) that does not contradict to literary reports [3] was characteristic.

Numerous researches of foreign authors testify to prevalence of articulate forms of RA over frequency of development of visceritises in 9-20% of patients [1, 5, 6]. According to literary reports the visceral pathology at RA is characterized by the development of anemia, lymphadenopathy but rheumatoid nodules and vasculitis develop less often. Less than 1/3 of RA patients suffer from anemia [2].

Some characteristic features in character of the onset and course of RA were revealed of RA patients surveyed patients (fig. 2).

The onset of RA was characterized by the development of polyarthritis with the subsequent visceritises at the majority of patients (83%). Frequency of visceritises was 58,9% in this group. Anemia prevailed among visceritises (57,5%), rheumatoid nodules were found in 50,8% surveyed, frequency of carditis was 22,3%, nephritis - 22,3%, pulmonitis - 14,4%, lymphadenopathies - 11,3%, polyneuropathies - 3,6%.

The share of fast progressive forms of RA in this group was equal to 9%, and sero-positive results were found out in 64% of cases.

RA in the second group (17% from total surveyed) debuted from mono- and oligoarthritis (53,9%). Frequency of visceritises was 39,8% in the advance stage of the disease and included development of anemia syndrome (37,5%), rheumatoid nodules (41,3%), carditis (14,6%), pulmonitis (10,7%), nephritis (18,4%), lymphadenopathies (10,9%). Sero-positive patients were 49,4% of all surveyed in this group.

Our study of geographical features of rheumatoid arthritis has revealed a prevalence of new cases of disease in northern and northeastern parts of Semipalatinsk region where radioactive environmental contamination was earlier.

Prevalence of RA is 1,06 per 10 000 of population in these parts and 0,52 in southern parts.

The main explanation of this fact is various depths of immune dysfunctions which were generated under influence on people of various doses of ionization radiation. In its turn it is a consequence of specific genetic defects which are common in inhabitants of the region [5], and also owing to climatic geographical features. Features of RA course (which are revealed during the research) stipulate development and specification of new therapeutic complexes for improvement of life quality and lengthening of able-bodied period in such a highly disablement disease as RA.

Thus, clinical course of rheumatoid arthritis in inhabitants of Semipalatinsk region of East Kazakhstan is characterized by the frequent development of a severe articulate syndrome and outer articular damages. Anemia is the common form of visceritises.

The greatest amount of RA patients is concentrated in northern and northeastern parts of the East Kazakhstan area where the tendency to accumulation of malignant progressive forms of disease is observed that is probably connected to the occurred radioactive contamination of region.

Structure of rheumatic diseases in Semipalatinsk area
 (according to rheumatological department of SSMA hospital for the period from 1983 to 1993)

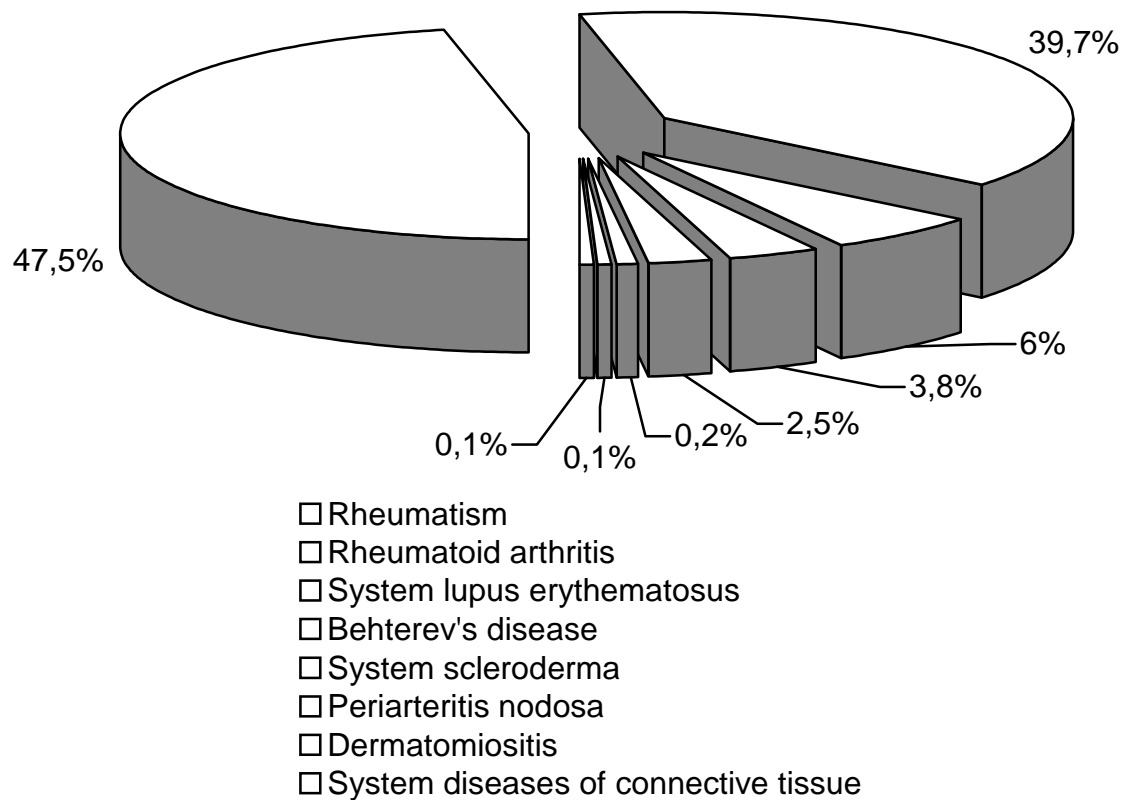


Figure 1.

Structure of a visceral pathology of RA patients
which reside in the territory of Semipalatinsk area of East Kazakhstan

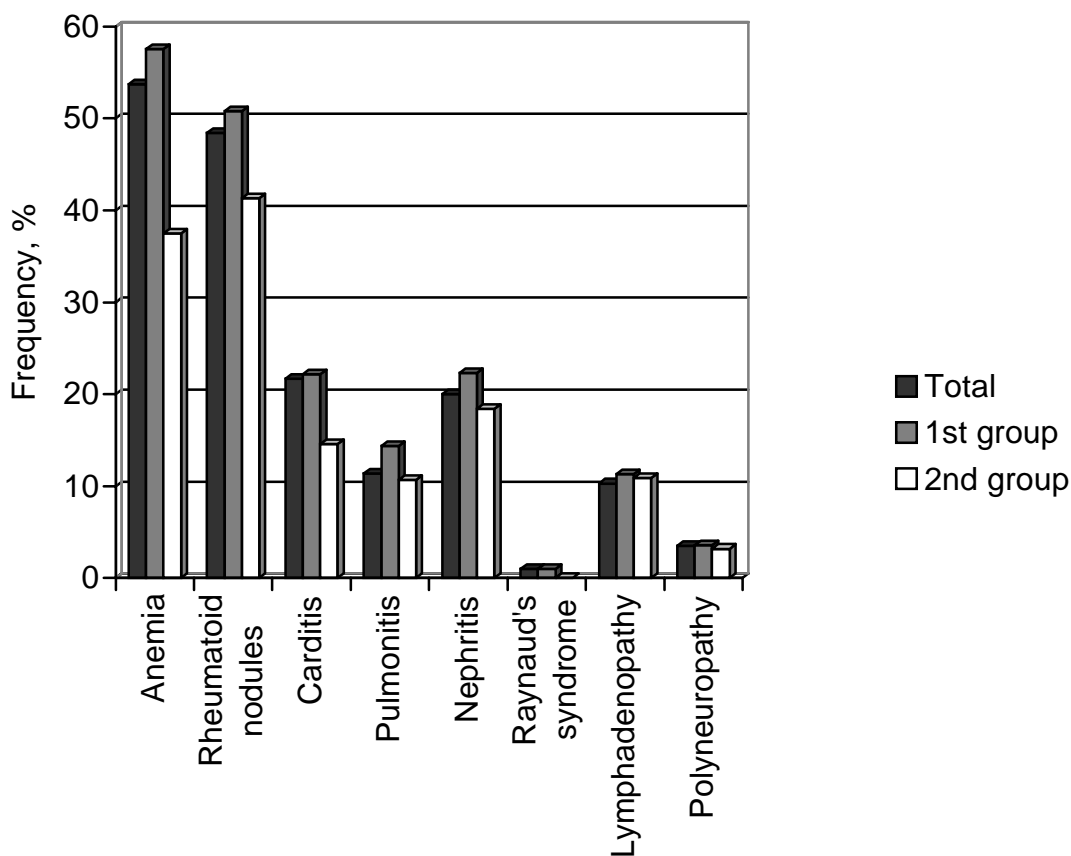


Figure 2

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DIABETES BURDEN
Report of N.N. Tukalevskaya, DARK President
at the VIII Republican Conference within Diabetes Day framework
November 15, 2002
Summary

During last years healthcare reform process was accelerated. These changes were caused by a number of reasons:

1. Health expenditures growth.
2. Limited healthcare resources.
3. Healthcare achievements and new clinical principles require more resources that are limited.
4. Limited access to healthcare services

More attention should be paid to economic issues of healthcare, such as appropriate utilization of resources, clinical costs, best clinical protocols that improve health and life quality of diabetes patients.

Reliable economic information is required for expert decision making in following areas:

- Introduction of new diabetes clinical protocols;
- Creation of favorable conditions for diabetes patients and training of the required number of healthcare specialists.

Healthcare economics research is frequently based on epidemiology information such as distribution and mortality etc.

Diabetes is a severe disease. Its rates are increasing worldwide, especially within non-european populations.

Based on research in the area of diabetes we can make following conclusions:

- Diabetes is becoming an epidemic disease that covers adult population of the world
- It is linked with changed life style and socio-economic transformations.
- Risk groups – developing countries, as well as minorities and poor population groups in developed countries. All countries should develop preventive and controlling programs for this expensive disease.

Insular diabetes and its complications are severe burden for healthcare system. More than 60% of diabetes costs cover complications treatment according to Russian experts. WHO and IDF call to implement preventive and patient education programs on diabetes management. It will help reduce severity and complications and will have long-term effect on the patients and society in general.

Healthcare economics is based on following clauses:

- **Identification of direct costs related to disease.**
- **Identification of indirect costs.**
- **Identification of the costs carried out by the patient.**
- **Identification of the most efficient resource utilization.**

Other costs related to the disease can't be evaluated in monetary equivalent and are not considered.

There is a need in full economic analysis of all aspects of the disease. International assistance of the organizations like International Diabetes Federation can be used in order to conduct analysis with appropriate methodology.

Main threat of diabetes is reduction of life quality and expectancy.

From one hand diabetes issue has universal characteristics that require development of general strategy and joint approaches. However, it is important to consider the difficulties caused by differences that exist within a country or between the countries.

There are only 100 thousands diabetes patients in Kazakhstan. However, they are not protected by our Government. Our Association insists that a Law on state purchase should be changed. Because based

on this Law out Ministry of Health is able to purchase only cheapest products that have lower quality. In turn it leads to appearance of new complications like lypodystrophia caused by utilization of thick needle 3-5 times a day, and many others including psychological ones.

We want our country to have normal competition, diversity of products of higher quality. Clinical tests should be based on the unified protocol and conducted in licensed laboratories. MOH actually could tighten requirements to the tenders for state purchases. That could weed out products of low quality and effectiveness from the very beginning. Unfortunately a situation that we can see is diametrically opposite. Tender requirements become more and more mild. Some important requirements like WHO, GMP certificates, reliability confirming documents, etc. are cancelled.

There is a lot that needs to be done. All involved organizations should work together in order to provide appropriate life quality to diabetes patients. All actions undertaken by these organizations should follow a slogan "Care for people". Some organizations like Socio-Medical Expert Commissions that give disability group are very rude and irresponsible to diabetes patients and have low qualification level. They don't know that diabetes is chronic incurable disease that requires 4-5 injections a day.

There is another problem that involves doctors that treat diabetes patients. Doctors distribute pharmaceutical products at their offices in favor of pharmaceutical companies that pay them commissions. Sometimes they change clinical protocol and prescribe a product that they promote. Unfortunately in some cases it might bring a patient to death. It is necessary to bring back a practice of distribution only through a drug-store network. To issue a legal resolution that prohibits doctors to distribute pharmaceutical products, and to increase salaries of health professionals in order to eliminate a main reason for this behavior.

Also a right of the patients to choose a doctor is not obeyed. It causes low quality of treatment and late diagnostic of complications.

Ministry of Health is now discussing a possibility to build our own insulin producing plant. It will be a set backward. Now we are using high quality human insulin, and if the plant will be constructed we'll have to transfer to animal (pig) insulin that has lower quality, and some patients won't take it due to their religious believes. This plant will cover our needs in insulin in 2-3 months. What this plant will do the rest of the year? Today we should think not about insulin production, but about domestic production of the goods that are required for prevention and treatment of insular diabetes.

There is a need in social support to diabetes patients and establishment of diabetes services at modern level. Support program should include a number of projects that provide prevention and treatment of insular diabetes and its complications.

Diabetes Association suggests to make changes and reforms that are aimed on diabetes burden reduction in following areas:

I PREVENTION OF DIABETES AND ITS COMPLICATIONS:

- 1.** Improvement of healthcare services provision to the diabetes patients.
- 2.** Improvement of practical diabetes management.
- 3.** Early diagnostic of diabetes and its complications.
- 4.** Development of primary healthcare services to diabetes patients
- 5.** Social adaptation of the disabled with diabetes.
- 6.** Establishment of Center for early socio medical rehabilitation and complication prevention for diabetes patients.
- 7.** Establishment of the network of commercial enterprises for diabetes services (shops, restaurants, etc.)
- 8.** Granting of some tax exemptions to the domestic producers of the ecologically clean products.

9. Granting some customs and tax benefits to the organizations that import dietary and diabetic products and goods to Kazakhstan.

**II TO AMENDMENTS AND ADDENDA TO THE RESOLUTION № 174-p
«REGULATIONS ON EXAMINATION, DETERMINATION OF CAUSES,
DIASABILITY GROUPS»**

**III TO DEVELOP A LAW ON "PATIENTS' RIGHTS PROTECTION" BY THE
GOVERNMENT OR PARLIAMENT OR MAKE AMENDMENTS TO
EXISITING LAW "ON HEALTH PROTECTION OF THE CITIZENS OF THE
REPUBLIC OF KAZAKHSTAN"**

To add following articles:

- ◆ A right to life
- ◆ A right to discrimination free attitude
- ◆ A right to safety in healthcare

- ◆ A right to keep psychiatric and physical health after medical interventions.
- ◆ A right to pain relief
- ◆ A right to participate in clinical process
- ◆ A right to get medical information
- ◆ A right to personal immunity during medical interventions
- ◆ A right o medical expertise

We also suggest outlining patients' responsibilities and insert new chapter to the Law: **«Responsibility for Patients Rights and responsibilities violations »**