лись преимущественно в срединном отделе, многие из них имели три и более точек прикрепления к стенкам желудочка, реже хорды находились в верхушечном отделе. Аномальная хорда, располагающаяся продольно вдоль межжелудочковой перегородки, с двумя точками прикрепления на ней встретилась в одном случае.

Аномальные хорды левого желудочка соединяли между собой различные анатомические структуры желудочка, часто папиллярные мышцы с МЖП, папиллярные мышцы между собой, папиллярные мышцы со стенкой желудочка, стенки желудочков.

Толщина хорд составляла 1-2 мм, длина при диагональном положении - 10 - 75 мм, при поперечном - 7-79 мм, сократимость и растяжимость – от 0 до 12 мм.

Аномальные хорды различных локализаций в большинстве случаев встречались в сочетании с другими МАС. Наиболее частыми были аномалии папиллярных мышц левого желудочка (55%), персистирующий клапан коронарного синуса (34%), фенестрации створок клапанов (35,3%): аортального (15,7%), митрального (10,8%), трикуспидального (8,8%); аномалии коронарных артерий (34%). К тому же аномальные хорды сочетались с аневризмами синусов Вальсальвы (15,7 %), открытым овальным окном у взрослых (13,7 %).

АРХ имели различное гистологическое строение: мышечные, фиброзные и фиброзно-мышечные. В большинстве случаев они имели повреждение покрывающего хорду слоя эндотелия, признаки формирования микротром-бов, кровоизлияния различной давности, скудную лимфоцитарную инфильтрацию, контрактурные изменения мышечных клеток, локальный и распространенный фиброз, кальциноз, миксоматоз. В мышечных аномальных хордах левого желудочка определяли Пуркинье - подобные клетки.

В эндокарде зон прикрепления аномальных нитей, преимущественно коротких малорастяжимых, отмечали фиброз, уменьшение либо увеличение плотности сосудов микроциркуляторного русла. Длинные провисающие хорды сопровождались зонами фиброза эндокарда в местах трения аномальной нити.

Результаты исследования показали, что положение аномальной хорды влияет на внутрисердечную гемодинамику, электрическую стабильность миокарда, является фактором риска повреждения эндотелия и тромбообразования. Механические свойства аномальных хорд (растяжимость и сократимость) определяют состояние прилежащего к точкам прикрепления миокарда и предрасполагают к развитию фиброза. Возможен разрыв хорды при снижении растяжимости, миксоматозе, а также при повышении сократительной активности миокарда. Частое сочетание АРХ с другими МАС свидетельствует о целесообразности прижизненного диагностического поиска нарушений архитектоники сердца.

E.L.Trisvetova, O.A.Judina

THE ANATOMIC CHARACTERISTIC OF ABNORMAL CHORDS OF HEART

Byelorussian state medical university
City pathoanatomical bureau Minsk
Byelorussia

ABSTRACT:

At autopsy are investigated prevalence, topographical and Anatomic (macro- and microscopic) features abnormal Chords of heart - variants of small anomalies. Frequency is determined occurrences (16,2 %) at the investigated group (578 cases),Distribution in chambers of heart (the right auricle, right and left venticlis), the features of structure influencing development of complications .

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E.D.ÜBEYLİ

MEDICAL DECISION SUPPORT SYSTEMS

Department of Electrical and Electronics Engineering, Faculty of Engineering
TOBB Ekonomi ve Teknoloji Üniversitesi, 06530 Söğütözü
Ankara, Turkey

ABSTRACT:

This paper illustrates the use of information and communication technologies in the medical environment. Medical decision support aims at providing health care professionals with therapy guidelines directly at the point of care. This should enhance the quality of clinical care, since the guidelines sort out high value practices from those that have little or no value. The goal of decision support is to supply the best recommendation under all circumstances. This goal may be achieved by the following measures:

- *Standardization of care leading to a reduction of intra- and inter-individual variance of care.*
- *Development of standards and guidelines following rational principles.*
- *Development of explicit, standardized treatment protocols.*
- *Continuous control and validation of standards and guidelines against new scientific evidence and against actual patient data.*

Key Words:

Information and communication technology, Computer-mediated communication, Health care, Medical informatics, Telemedicine

1. INTRODUCTION

In the last decade, information and communication technologies have seen enormous growth and have been introduced by various degrees into the medical environment. The extra processing power and facilities open up the scope for much more powerful processing and networking of medical applications. Communication networks are becoming increasingly large in size and heterogeneous in nature. Recent advantages in communication technologies have contributed to an explosion of new services directed at the medical environment. Figure 1 shows a mapping between medical applications and network evolution [1]. The general goal of using communication technologies in medical environments is to improve the overall quality of health care at an affordable cost. This requires close interaction between health care practitioners and information technologists to ensure that the proposed technologies satisfy current user's needs and anticipate future ones. Appropriate application of information technology in primary health care will extend traditional diagnosis and patient management beyond the physician's clinic into the everyday living environment. A model of information management in primary health care and place special emphasis on the emerging areas of medical decision support, computerized medical measurements, patient education and network connectivity is described. In general, practice the representative model of information management can be formulated as in Figure 2 [2,3].

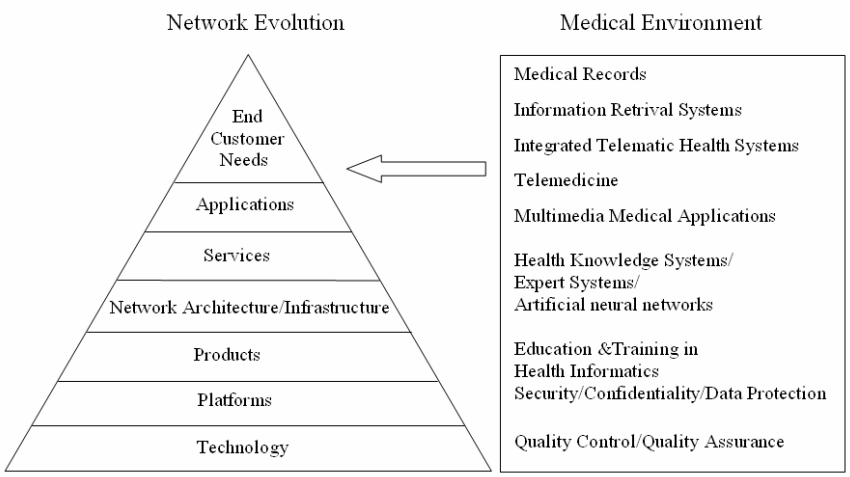

Figure 1. Mapping of medical applications to network evolution

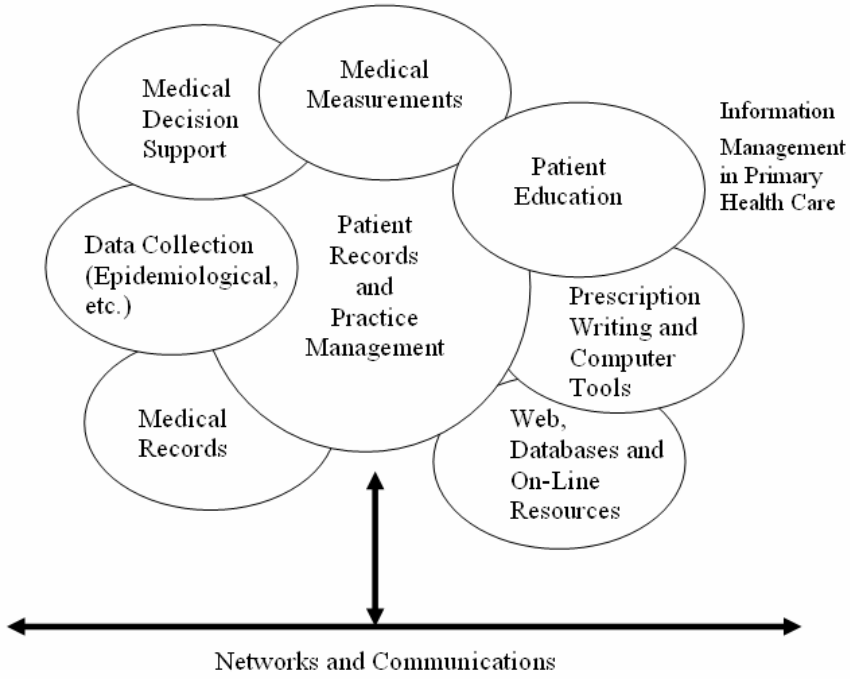

Figure 2. A proposed model of information management in primary health care

Modern medicine requires a rapid access to information including clinical data from medical records, bibliographic databases, knowledge bases and nomenclature databases. This implies the development of local, national and international cooperation which can be enhanced via the use and access to computer networks such as the internet. The internet has experienced exponential growth both in its size and in the number of people who access it, since its creation. Increasing ease of access guarantees continued growth in the number of people using the internet. In response to the creation and popularization of the internet as a convenient medium of communication, there has been an explosion of medical information on the internet [4-6]. Health information and services are available nowadays over telecommunication networks such as the internet, and they are accessible through a plethora of different media, ranging from telephones (including mobile phones and wireless application protocol [WAP]), to web-TVs, personal digital assistants and, of course, computers with standard web browsers. Within this context, electronic health services are provided directly to patients, who are the consumers of such information for their own care. The presence of such services is changing the model of the patient-physician relationship. Traditional paternalistic or educational models, in which the physician filters information from their own medical knowledge to patients, are being replaced by a patient as a partner model, in which the patient is informed on disease conditions before meeting the physician, and in which choice of physician/ specialist may be also related to information available over the internet [3,7].

Contact Information:
Prof. Elif Derya ÜBEYLİ
E-Mail: edubeyli@etu.edu.tr

2. MEDICAL INFORMATICS

Medical informatics is the discipline concerned with the systematic processing of data, information and knowledge in medicine and health care. Health care is diagnosis and treatment of illness. Diagnosis of illness involves two basic tasks:

collecting of information about the patient (both current and previous conditions) and analysis of that information to give a decision about causes of illness. The domain of medical informatics covers computational and informational aspects of processes and structures in medicine and health care. Although medical informatics is an ancient discipline, there is currently a much stronger and rapidly growing perception of information technology and concepts in the process of care. On the basis of this understanding four core elements of medical informatics can be identified:

- The way health care professionals think about patients.
- The way diagnoses are made and evaluated and treatments are defined, selected and evolved.
- How medical knowledge is created, shaped, shared and applied.
- How health care professionals organize themselves to create and run health care systems.

Two principle goals of medical informatics can be distinguished:

- To provide solutions for problems related data, information and knowledge processing.
- To study general principles of processing data, information and knowledge in medicine and health care.

More specifically medical informatics has a role in answering the new challenges for health care:

- Structures for pooling, communicating and applying clinical evidence.
- Organizational processes to minimize resource use while securing maximal benefit.
- Development of tools and methods to achieve these aims.

All health care professionals and ancillary departments have to focus on the patient. Communication of data and information takes place between all the parties involved, and between them and the patient. Patient-related information has to be available at any time, anywhere and in its entirety. Ideally all patient information should be available throughout the lifetime of the patient. In addition to communication within the medical domain, more and more information needs to be provided to institutions such as health maintenance organizations, regulatory bodies, etc. Medical informatics may provide a representation of the continuum of care in the health care system as a whole.

The technical applications of medical informatics are legion. We encounter them everywhere in the process of care, where they serve, among others, the following purposes [8,9]:

- Hospital administration, billing and accounting.
- Resource management.
- Medical documentation.
- Diagnostics and therapy.
- Imaging.
- Communication.
- Information management.
- Medical decision support systems.

3. MEDICAL DECISION SUPPORT SYSTEMS

The foundation for any medical decision support is the medical knowledge base which contains the necessary rules and facts. This knowledge needs to be acquired from information and data in the fields of interest, such as medicine. Three general methodologies to acquire this knowledge can be distinguished:

- Traditional expert systems.
- Evidence-based methods.
- Statistical and artificial intelligence methods.

The medical decision support system consisting of differential diagnosis, computer-assisted instruction, consultation components and subsystems is shown in Figure 3. The computer-assisted instruction component is consisted of the differential diagnosis. The differential diagnosis component contains three subsystems: artificial neural network (ANN) model, time series analysis and medical image analysis. Time series analysis is based on the extraction of information from medical signal data. Medical image analysis can be used for medical decision making.

ANN models are computational modeling tools that have recently emerged and found extensive acceptance in many disciplines for modeling complex real-world problems. ANNs produce complicated nonlinear models relating the inputs (the independent variables of a system) to the outputs (the dependent predictive variables). ANNs are valuable tools in the medical field for the development of decision support systems. Important tools in modern decision-making, in any field, include those that allow the decision-maker to assign an object to an appropriate group, or classification. Clinical decision-making is a challenging, multifaceted process. Its goals are precision in diagnosis and institution of efficacious treatment. Achieving these objectives involves access to pertinent data and application of previous knowledge to the analysis of new data in order to recognize patterns and relations. Practitioners apply various statistical techniques in processing data to assist in clinical decision-making and to facilitate the management of patients. As the volume and complexity of data have increased, use of digital computers to support data analysis has become a necessity. In addition to computerization of standard statistical analysis, several other techniques for computer-aided data classification and reduction, generally referred to as ANN, have

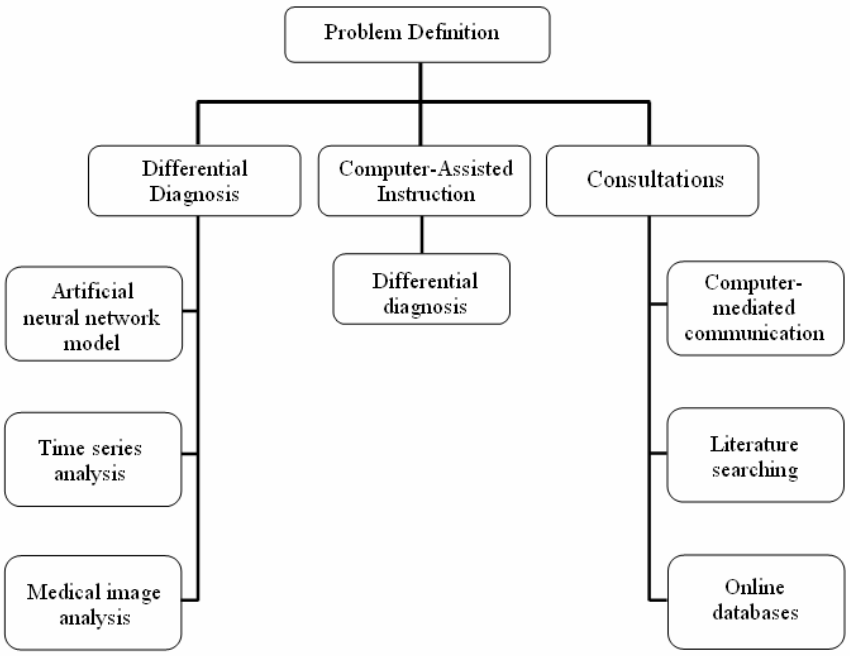

Figure 3. A medical decision support system

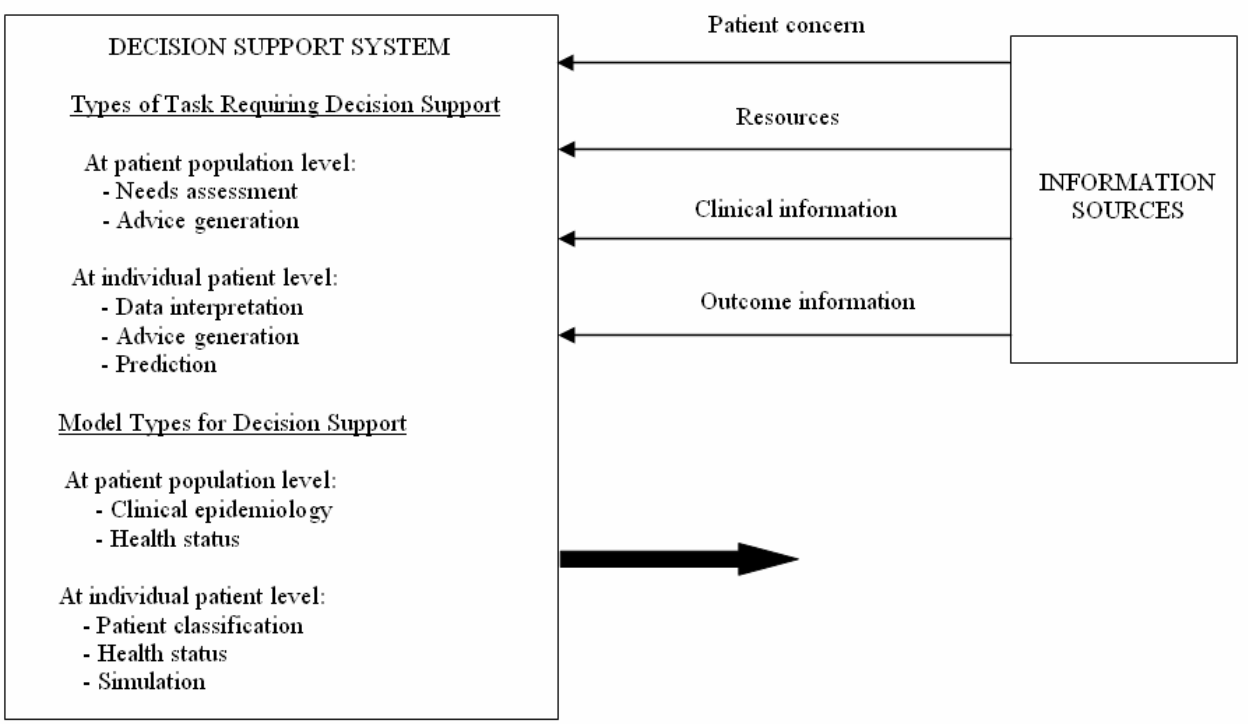

Figure 4. The decision support system, highlighting the range of tasks that can arise and with the corresponding array of modelling approaches that can be adopted, given the availability of the relevant types of information as indicated

evolved. The ANN model discussed above has expanded in two directions. First, time series analysis and medical image analysis supply important parameters to medical decision making process and the parameters can be used as the input of the ANN model. The second direction of expansion includes databases available locally or through internet access.

The consultation component contains three subsystems: computer-mediated communication, literature searching, online databases. The term "computer-mediated communication" is used to refer primarily to forms of communication that operate through computers and telecommunication networks. Applications of computer-mediated communication that relate specifically to health have been described using the term "interactive health communication". Interactive health communication that uses internet-based technologies has several advantages over earlier health education approaches that are based on the inherent capacities of this communication media. Advantages include flexibility of use, automated data collection and openness of communication. Access to the internet allows users to receive information from a vast array of sources. Information is accessible on demand and not restricted in terms of time or location. Computer-mediated communication also has the advantage that it can automatically collect data and generate feedback. Participant histories can be generated based on the frequency and nature of website materials use, as well as on the response options given to questions using online forms. Some evidence suggests that participants interacting with computer-mediated assessments may be less influenced by social conventions and communicate more openly than those responding to face-to-face or telephone interviews. Furthermore, computer-mediated assessments can more rapidly ask follow-up questions, using branching logic based on each respondent's answers.

Literature searching can easily be done with the use of the internet. In addition to literature searching, online information is vital. The best solution would be to have articles available directly online in the form of a digital library and to provide electronic access to high impact clinical journals. Many physicians and participants find access to evidence-based medical information on the internet. A growing number of databases exist on the internet which can be freely accessed, including medical information, archived images representing healthy and diseased conditions. Medical information generally consists of risk factors of diseases and demographic and medical data of subjects. The decision support system is shown in Figure 4 [4,8,10].

4. TELEMEDICAL SERVICES

The evaluation of telemedical services becomes more and more important with the rapidly increasing development of telemedicine technology. The term telemedicine describes the application of telecommunications and information technologies to medicine, in order to provide medical services across distances without the usual face-to-face, physician-to-patient encounter. Telemedicine includes multimedia, internet and web-based applications. In recent years, internet with its powerful penetration and scalability has become an increasingly popular medical information resource and a new platform for telemedicine. The wide scope of applications for telemedicine includes patient care, research and public health to diagnose, deliver care, transfer health data, provide consultation. In addition to this, distant learning can be used for educating patients, as well as health care personnel [5].

Some of the leading goals of telemedicine are to enable

- an increase of the availability of services,
- instant access to data,
- secure access and exchange of data,
- a high quality of service and
- reduction in the cost for the health service.

The fundamental concepts of telemedicine technology, including:

- Basic principles of telecommunications and internet-

working of computer systems;
- Use of communications software, including electronic mail and browsers for the www;
- Forms of telecommunications, including videoconferencing, remote data monitoring and file transfer, applicable to medical care in remote or rural environments.

Telemedical projects rely heavily on interdisciplinary cooperation due to the diversity of problems that must be solved, ranging from medical tasks to telecommunication solutions. This makes the assessment of the overall delivered service – the telemedical service – very complex [11].

5. CONCLUSION

Fast developments in information and communication technology have made it possible to develop new services for people. One of the most interesting areas is health care. Medical informatics is the discipline concerned with the systematic processing of data, information and knowledge in medicine and health care. Information services, medical decision support systems and telemedicine are becoming important tools for medical professionals and also people who are interested in health related information. Medical decision support aims at providing health care professionals with therapy guidelines directly at the point of care. Medical decision support systems need to take advantage of all available information, including expert input, database information, and nontextual information such as medical time series and image information. Telemedicine is the use of modern telecommunications and information technologies for the provision of clinical care to individuals at a distance and transmission of information to provide that care. All important tools for acquisition, preparation and distribution of medical data and knowledge are available with the current information technology. Medical informatics is an application-oriented science which must move the technological realization of methods and concepts of information management in medicine forward. In conclusion, rapid and cost-effective communication medium, enabling an approach to risk profile screening and data collection for undiagnosed diseases.

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С.В.Харитонов, Н.А.Кузнецов, Л.С.Аронов, У.О.Гафаров, О.А.Поварихина

АБДОМИНАЛЬНЫЙ КОМПАРТМЕНТ-СИНДРОМ В ХИРУРГИИ ГРЫЖ

ГОУ ВПО «Российский государственный медицинский университет Федерального агентства по здравоохранению и социальному развитию»
Москва, Россия

АБСТРАКТ

На основании клинических исследований разработан и обоснован комплекс мероприятий по профилактике развития абдоминального компартмент-синдрома у больных с грыжевыми образованиями передней брюшной стенки. Алгоритм включает в себя учет индивидуальных особенностей анатомо-функционального строения передней брюшной стенки больного в предоперационном периоде, интраоперационный контроль внутрибрюшного давления с определением вероятности последующего развития интраабдоминальной гипертензии, а также применение в раннем послеоперационном периоде ультразвукого сканирования для регистрации гемодинамических нарушений органного кровотока органов брюшной полости.

Ключевые слова:

компартмент-синдром, грыжа, герниопластика, ультразвуковое исследование, компьютерная томография

Применение синтетических эксплантатов позволило достигнуть значительного улучшения результатов лечения больных с вентральными грыжами. Тем не менее, вопросы индивидуального выбора метода пластики передней брюшной стенки и профилактики развития абдоминального компартмент-синдрома остаются до конца не решенными.

Contact Information:
Prof. E.L.Trisvetova
E-Mail: eugenietrisvet@mail.ru

Это связано с тем, что «естественное» стремление хирурга во чтобы то ни стало свести края грыжевых во-