SYSTEM SONARES EXTENSION FOR EXTREME CASES

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Human life is the most precious and the most fragile thing that we must take care in disaster situations. Each emergency case when people suffer requires much effort from the rescue teams that can be facilitated and accelerated by applying technologies capable of saving lives and health of victims.

Statistics shows that in cases of natural disasters, catastrophes and accidents about 70% of affected persons need specific healthcare approach limited in time. In all these cases the people life-saving depends on the actions of emergency services. Net of the centers of urgent medical help assures the assistance which is efficient enough in the cases when the number of victims is not large. But if the number of victims is large (mass casualty and disaster setting) the new methods are necessary which will determine quickly the lesion location, first aid measures at the place of accident and the help that should be provided for victims to be transported to specialized clinics. To assure adequate and efficient measures of providing of urgent medical help to victims the efficient on-the-fly diagnostics methods are necessary.

Ultrasound diagnostics at the site of disaster is aimed at determining the level of urgency to save lives and to prevent any complications for people at risk. Being a noninvasive method, easily applicable and prevalent, the urgent sonographic examination has the possibility to meet a lack of quick diagnostics in medicine for the catastrophes and calamities, this fact being due to the appearance of portable sonographic scanners.

Methodology, technology and medical knowledge representation form, used in framework of the development of the SonaRes system [1], have allowed the creation of the Emergency-SonaRes system, which will help physician to obtain quickly a correct diagnosis directly in the places of accidents, catastrophes etc.

The Emergency-SonaRes system provides help to physicians from emergency crews in determination of adequate diagnosis in proper time for saving lives of patients. It will offer on-the-fly instructions to obtain qualitative images of affected organs and recommendations for victims sorting: to provide medical assistance in the site or after quick evaluation of the patient state to send him immediately to clinic specialized in organ's pathology or injured organs' system. Two versions of the system are presented: the first one, which can be used at the accident site, as well as in most departments of medical clinics, involved in emergency care – Critical and Intensive Care Service, Emergency Department, Imaging Department. The second version is recommended for utilization in Emergency Medical Services.

According to the average of questions one have to answer in the process of examination using the Extended SonaRes we expect its duration no more 2-3 minute and for the Emergency-SonaRes we expect its duration of diagnostics to be no more than 1-2 minutes.

[1] Burtseva L., Gaindric C., Cojocaru S. Images and rules based decision support system in ultrasound examination of abdominal zone. Memoirs of the Scientific Sections of the Romanian Academy. Computer Science, SERIES IV, Tome XXXIV:173–184.