Acute illnesses predicting DNR order. Patients admitted with acute cardiac diagnoses and trauma were more likely to have full code status at the time of death. On the contrary, septic patients were much more likely to have DNR order recorded (**Table 1**).

Predictors of timing of DNR. Do-not-resuscitate orders were more likely to be written on day one of hospitalization in cancer patients {OR 2.5 (1.4-4.5)} and on the last hospital day in cirrhotic patients OR 2.8 (CI 1.6-5.1) and gastrointestinal bleeding patients OR 3.7 (CI 1.6-8.4).

Results of this study revealed some interesting information on the current practice, and predictors of patient DNR in a tertiary care center in the KSA. 1. The majority of the patients dying in our institute had DNR order by the time of death. 2. The numbers of patients who were labeled DNR at the time of death; in our institute, we are close to international figures.[1] 3. Dying patients with cancer, cirrhosis and those admitted with sepsis are less likely to be resuscitated, whereas dying cardiac and trauma patients are more likely to continue receiving full support. In addition, DNR status was initiated early in cancer patients, on the other hand there was a delay in DNR orders in cirrhotic patients, which may reflect the fact that majority of the patients were referred for possible liver transplant.

It may seem that any decision to withhold CPR should be fairly uniform, and not vary with the underlying disease after adjustment for physician estimate of prognosis. However, in real practice the converse is true, for example, incurable metastatic cancer or coma have well defined prognosis, therefore, many physicians and patients would agree on withholding CPR when confronted with the above disease.[3] In our study as well, we observed that cancer patients were readily given a DNR, avoiding undue suffering. However, patients with other diseases such as end stage congestive heart failure (CHF), follow a less predictable course.[4] In our study, unclear prognosis and unpredictable response to treatment even late in the course of CHF, may explain why DNR orders were less likely to be written for patients with CHF compared to patients with other diseases.

Surprisingly, in our study patients with dementia, renal failure, end-stage lung disease and CVA were less likely to be labeled DNR, which may reflect lack of subgroup analysis or lack of awareness of the prognosis among the physician, or resistance from the family in making patients DNR. In our analysis, cirrhotics were another group in which the physicians agreed that resuscitating the majority of such patients is futile, which may indicate increased awareness among our staff regarding the futility of CPR and poor prognosis among patient with the diagnosis of liver cirrhosis. The late timing of DNR order in cirrhosis patient could be due to the fact that our institute is a liver transplant center, and a large population of our patients are on the transplant waiting list.

Our study's main limitation is that it is a monocenter reflecting the practice in one center in a single country. However, considering the limited literature regarding end of life issues and the practice of DNR in Muslims,[5] this article comes as a first step in exploring this important field.

As the medical community of the KSA comes to grip with the new realities of limited budget and increasing burden on health care to provide state of the art medical care, we believe it is the right time to have national medical guidelines concerning end of life issues. This would lead to more uniform and standard practice of DNR, and appropriate use of medical resources without compromising the quality of medical care. In addition, we anticipate that this study will encourage further research among the medical community in the KSA and other muslim countries regarding end-of-life care relevant to adult muslim patients.

Received 29th October 2003. Accepted for publication in final form 31st March 2004.

From the Intensive Care Unit (Ur-Rahman, Arabi, Adhami, Al-Shimemeri), and the Quality Assurance Department (Parker), King Abdul-Aziz Medical City, King Fahad National Guard Hospital, Riyadh, Kingdom of Saudi Arabia. Address correspondence and reprint requests to Dr. Masoor Ur-Rahhman, Consultant, Intensive Care Unit (MC 1425), King Abdul-Aziz Medical City, King Fahad National Guard Hospital, Riyadh, Kingdom of Saudi Arabia. Tel. +966 (1) 25200088 Ext. 3143/2498/2493. E-mail: masoodurrahman@hotmail.com

References

1. Jayes RL, Zimmerman JE, Wagner DP, Draper EA, Kanus WA. Do-Not-Resuscitate order in an intensive care unit. Current practices and recent changes. ***JAMA*** 1993; 270: 2213-2217.
2. Mobeireek A. The Do-Not-Resuscitate order: Indications on the current practice in Riyadh. ***Annals of Saudi Medicine*** 1995; 15: 6-9.
3. Faber-Langendoen K. Resuscitation of patients with metastatic cancer is transient benefit still futile? ***Arch Intern Med*** 1991; 151: 235-239.
4. Poses RM, Smith WR, McClish DK, Huber EC, Clemo FL, Schmitt BP et al. Physician's survival prediction for patients with acute congestive heart failure. ***Arch Intern Med*** 1997; 157: 1001-1007.
5. Sarhill N, LeGrand S, Islambouli R, Davis MP, Walsh D. The terminally ill Muslim: death and dying from the Muslim perspective. ***Am J Hosp Palliat Care*** 2001; 18: 251-255.

The first Arabic health related quality of life visual function assessment tool. *The Arabic visual function tool (AVFT)*

Zbys Fedorowicz, *BDS, LDS,* ***Peter R. Gutierrez,*** *MA.*

Until more recently, Health-Related Quality of Life (HRQoL) measurement has had a minimal impact on patient management and healthcare policy decisions. It is generally accepted, however, that patient-focused care, the holy grail in healthcare requires the bringing together of a number of quality improvement concepts of which HRQoL is expected to play an increasingly significant role.

Perceived difficulties in cultural adaptation and linguistic equivalence have produced ambivalence towards these HRQoL measures and resulted in their limited acceptance in the Arab world. The Arabic Visual Function Tool (AVFT),[1] is possibly the first independently developed HRQoL instrument in the Arab world. A number of HRQoL instruments have been translated into Arabic but the AVFT is the first one to have been designed and culturally adapted specifically for our region. It will find application in the assessment of visual function in aged related cataract, which is considered to be a significant health problem in the Middle East. It is acknowledged that age-related cataract accounts for more than 40% of cases of blindness throughout the world and the majority of cataractous patients are to be found in the developing world.[2] At the present time there has been no large scale assessment of the impact of cataract on daily vision related activities in the Arab region.

Historically, visual acuity has remained the gold standard for assessment of visual function but there have been concerns expressed about its accuracy and validity.[3] To address the performance deficit of the visual acuity test, ophthalmologists have increasingly relied on additional measures such as contrast sensitivity to evaluate visual function. The terminology used to describe this innovative approach is quality of vision contrasting with quantity of vision, which is still measured by the visual acuity test. Thus, the standard eye test continues to focus on objective measures, whereas the subjective issues expressed by self-reported outcomes and HRQoL indicators are the most significant ones to the patient. The ophthalmology literature confirms that many investigators have reached similar conclusions, that there is a discrepancy between patients' performance in the standard visual acuity test and their self-reported outcome after cataract surgery.

Quality of Life Instruments Database (QOLID), developed by Mapi Research Institute,[4] maintains an extensive database of HRQoL instruments, which lists several visual functions HRQoL measurement tools, such as VF-14, SIP vision, type cataract. Surprisingly, there were no visual function tools on the institute's database that have been developed for specific use in the Arab world. The development or modification of an existing HRQoL tool that would find application in the Arab world was considered long overdue. Specific requirements for the AVFT were the ability to provide a robust and culturally appropriate qualitative measure of longitudinal changes in quality of life assessed through visual function.

Examination of all currently available instruments showed that few met all the cultural and linguistic criteria, which were considered appropriate for the Arabic-speaking world. However, the most widely used visual function assessment tool is the VF-14,[5] an instrument that measures visual functional capacity by examining daily vision related activities especially those which could be influenced by cataract. The factors considered in selecting the VF-14 as the gold standard and a suitable prototype for the AFVT over other available instruments, were its face validity, perceived relevance, published validity and brevity. Additionally, there was already a substantial body of research work using the VF-14. It had been translated into several languages, even been reduced to a VF-12 and yet maintained its reliability, validity and responsiveness to clinical change. Its other attributes of consistency, reliability, simplicity in use by both investigator and patient made it a suitable model for adaptation.

While literal translation word for word into Arabic might call into question the functional equivalence of words and concepts, the VF-14, with its emphasis on specific aspects of visual function provided a greater degree of confidence in the cultural and linguistic equivalence of any possible translation and adaptation.

Prime targets were to secure the AVFT's linguistic validation and cultural adaptation. To ensure competent linguistic validity, the steps outlined by Alonso et al[6] were followed. Forward translation into Arabic was performed independently by 2 bilingual individuals. The reconciled versions were then back, translated into English and compared with the originals. Some questions had to be eliminated and some were altered to reflect hobbies, pursuits, daily activities and cultural differences that would be better understood by Arab patients. Modest changes were made to reflect cultural differences but as no specific linguistic difficulties were encountered it was considered that the AVFT has conceptual equivalence to the VF-14. A pilot study was conducted,[7] using the AVFT to compare the outcome of cataract surgery using extracapsular cataract extraction and Phaco-emulsification and further validity and reliability testing is currently being planned.

This Arabic language HRQoL instrument was accepted by Mapi Research Institute for registration on QOLID in July 2003 and is now referenced in the Cochrane Library.[8] Further information and permission to use the AVFT can be obtained through the corresponding author.

Acknowledgment. The authors would like to thank Dr. Fawzi A. Ameen, Director of the Quality Improvement Project at the Ministry of Health, Bahrain for his constant support and advice throughout the development phase of this Health Related Quality of Life assessment tool.

Received 10th February 2004. Accepted for publication in final form 30th May 2004.

From the Studies and Research (Fedorowicz), Bahrain Quality Society, Najeeb Gardens, Budaiya, Bahrain, and David Geffen School of Medicine (Guttierrez), UCLA, Los Angeles, California, United States of America. Address correspondence and reprint requests to Dr. Zybs Fedorowicz, Box 25438, Awali, Bahrain, Arabian Gulf. Tel/Fax. +973 17697054. E-mail: zbysfedo@batelco.com.bh

References

1. Fedorowicz Z, Hamed WW. The Arabic Visual Function Test. ***The Quality of Life Newsletter Issue*** 2003; 9: 30.
2. Snellingen T, Evans JR, Ravilla T, Foster A. Surgical interventions for age related cataract. ***Cochrane Database Syst Rev*** 2002; 2: CD001323.
3. Hamed WW, Fedorowicz Z. In: The Cochrane Library. Issue 1. Day care versus in-patient surgery for age-related cataract (Cochrane Review). Chichester (UK): John Wiley & Sons; 2004.
4. QOLID. Available from URL: http://www.mapi-research-inst.com
5. Steinberg EP, Tielsch JM, Schein OD, Javitt JC, Sharkey P, Cassard SD, et al. The VF-14. An index of functional impairment in patients with cataract. ***Arch Ophthalmol*** 1994; 112: 630-638.
6. Alonso J, Espallargues M, Andersen TF, Cassard SD, Dunn E, Bernth-Petersen P et al. International Applicability of the VF-14. ***Ophthalmology*** 1997; 104: 5.
7. Wael W, Fedorowicz Z. Assessment of patient reported outcomes of cataract surgery using the first Arabic Visual Function assessment tool. ***Cairo University Medical Journal*** 2003; 71 (Suppl 2): 343-347.
8. The Arabic Visual Function Test. The Cochrane Library. Issue 2. Update Software Oxford, ID CMR 4696; 2002.

Prevalence of the anatomic variations of the extra biliary ducts in Khartoum, Sudan

Hamid A. Al-Tigani, *MBBS, Master of Human Morphology,*
Mohamed A. Bakheit, *MBBS, PhD.*

Variations and anomalies of the extra biliary ducts are common due to their complicated embryological development. The gall bladder might resume different sizes and shapes. It might be bilobed or diverticular. It might be ectopic; the common sites are retrohepatic, anterior abdominal wall, falciform ligament, suprahepatic, floating, retroperitoneal or rarely transverse in position. It might be duplicated, both bladders having separate ducts or a common cystic duct;[1] or it might be intrahepatic. The cystic duct might join the common hepatic duct at different sites and patterns. These junctions are described as angular, parallel or spiral.[2] In the angular type, it joins the common hepatic duct at an acute angle high up below the porta hepatis. In the parallel type, it joins the common bile duct low down behind or below the duodenum.[3] In the spiral type, the cystic duct passes above or below the common bile duct to join its left side.[2,3] The cystic duct might join the right hepatic duct or might converge with the right and left hepatic ducts at the same point where the common hepatic duct will be absent.[4] It might be absent and the gall bladder drains directly into the bile duct. Failure of canalization of the hepatic ducts might occur in or outside the liver.[5] Extrahepatic biliary atresia or stenosis might be accompanied with obstructive jaundice and hence may invite early interference.[6] Intrahepatic biliary atresia usually accounts for a high perinatal mortality. Two bile ducts might be found if the hepatic bud bifurcates early. Multiple accessory ducts might arise from the liver. They might join the hepatic ducts, the bile duct or rarely the gall bladder itself.[7] The bile duct usually joins the pancreatic duct to form a single duct that opens at the ampulla of Vater in the second part of the duodenum. Occasionally it opens separately or joins the pancreatic duct inside the duodenum.[8]

The biliary system was examined using 3 different methods. Sixty cadavers were dissected and the extra biliary ducts examined in the dissection room of the Anatomy Department, College of Medicine University of Khartoum, Sudan, King Faisal University, Dammam, Kingdom of Saudi Arabia. One-hundred patients undergoing biliary surgery were examined in Khartoum Civil Hospital, Soba University Hospital and Omdurman Civil Hospitals, Khartoum, Sudan. Data were obtained from a master sheet completed by the surgeons. Forty patients with symptoms of biliary diseases were investigated using a Siemens SL-1 ultrasound machine in Omdurman Military Hospital, Khartoum, Sudan. Data obtained were then tabulated and analyzed.

The junction of the cystic duct with the common hepatic duct was found to be angular in 75%, parallel in 13% and spiral in 6% of the cases. Three hepatic ducts were found in 4 patients amounting to 2% of the cases and in 3% the common hepatic duct was not found, and the cystic duct joined the right hepatic duct. The bile duct joined the pancreatic duct at the ampulla of Vater in 86.5% of the cases and opened separately into the duodenum in 13.5%. The gall bladder was dilated in 26% of the cases and fibrotic or shrunk in 5%. The liver seemed to be enlarged in 22% of the cases.

The junction of the cystic duct with the common hepatic duct was angular in 75%, parallel in 16% and spiral in 6% of the cases. This high ratio of angular junction could be attributed to the rare interference of the head of the pancreas with the rotation of the duodenum. Should this interference occur, the junction would take a different pathway