Key Messages

※ Liver transplantation is a life-saving procedure for adults and children with end-stage liver diseases. Liver grafts can come either from a deceased donor or living donor.

※ Globally, there were 25,050 liver transplantations performed in 2013. Among them, 18.3% of livers were from living donors.

※ Hong Kong had its first deceased donor liver transplantation, first paediatric living donor liver transplantation, and first adult living donor liver transplantation in 1991, 1993 and 1994 respectively. Between 1991 and 2014, there were a total of 1,148 liver transplantations performed at the Queen Mary Hospital (QMH). Among them, 646 used living donor grafts and 502 used deceased donor grafts.

※ As the demand for liver grafts continually outstrips supply, it would be hard to reduce the proportion and number of living donor liver transplantations without an increase in donated livers from deceased donors.

※ To support organ donation after death, members of the public may indicate their wish to donate organs after death by registering in the Centralised Organ Donation Register (CODR) at https://www.codr.gov.hk/codr/Internet.do and informing family and relatives about this wish.

※ To have the gift of hope continue to snowball, prospective donors can also encourage family, relatives and friends to do likewise.
Liver Donors - Anonymous Heroes Who Save Lives

Liver transplantation is a surgery to remove a diseased or injured liver and replace it with a whole or partial healthy liver from a donor. Liver grafts can come either from a deceased donor or living donor (usually a healthy family member). In a living donor scenario, the operation in the donor involves taking out the required segments while ensuring that the remnant liver is sufficient for the living donor to maintain normal body functions. In fact, the development of living donor liver transplantation is to compensate the critical shortage of deceased organ donations for increasing number of patients waiting for liver transplantation.\(^1,2\)

There are many diseases of liver which may need transplantation eventually. Common indications for liver transplantation include cirrhosis from chronic liver diseases, acute liver failure, liver malignancies, metabolic liver diseases and other irreversible liver diseases (Figure 1).\(^2,3\) Nevertheless, some patients may not be appropriate candidates for liver transplantation, for example, patients with active alcohol intake or substance abuse, active infection or uncontrolled sepsis.\(^2\)

Figure 1: Common indications for liver transplantation
Global Perspective

Since the first successful liver transplantation from deceased donor was performed in 1967, liver transplantation has evolved and become a highly successful life-saving procedure for many adults and children with end-stage liver diseases. Survival after liver transplantation has also progressively improved with 1-year and 5-year survival rates exceeding 85% and 70% respectively.4

Liver is the second most common solid organ to be transplanted worldwide after kidney. The International Registry in Organ Donation and Transplantation of Global Observatory on Donation and Transplantation (http://www.irodat.org/) estimated that there were 25,050 liver transplantations performed globally in 2013. Among them, 18.3% of livers were from living donors.5 While use of liver from deceased donor predominates in the Western countries, use of living donor liver transplantation is more popular in Asian countries. The relatively slow progress of deceased donor liver transplantation in Asia is mainly due to the cultural and religious barriers of organ donation.6, 7 As Figure 2 shows, Croatia had the highest rate of liver transplantation from deceased donors of 26.5 per million population in 2013, whereas South Korea had the highest rate of liver transplantation from living donors of 16.1 per million population.8

Figure 2: Rate (per million population) of liver transplantation from deceased and living donors in 2013

Source: International Registry in Organ Donation and Transplantation.
Local Situation

Hong Kong had its first deceased donor liver transplantation at QMH in 1991, whereas the first paediatric living donor liver transplantation and the first adult living donor liver transplantation was done in 1993 and 1994 respectively. In children, the most common indication for liver transplantation is biliary atresia. Among adults, the most common indication for liver transplantation is liver failure secondary to hepatitis B infection. In mid-2003, QMH became the only liver transplantation centre in Hong Kong.

A review of a total of 1,148 liver transplantations (including 134 paediatric recipients) performed at QMH between 1991 and 2014 revealed that 646 used living donor grafts and 502 used deceased donor grafts (Figure 3). The overall 1-year, 3-year and 5-year survival rates were 92.9%, 88.2% and 85.8% respectively. For paediatric recipients, the corresponding rates were 93.6%, 91.0% and 91.0%. For adult recipients, they were 92.8%, 87.9% and 85.1% respectively.

Figure 3: Liver transplantations performed at Queen Mary Hospital, 1991 to 2014

Source: Department of Surgery, The University of Hong Kong.
Promotion and Support of Organ Donation

Liver transplantation techniques in Hong Kong have advanced greatly with a low hospital mortality (< 2% in 2012) and high long-term survival.\(^9\) However, such life-saving practice is hindered by the shortage of liver grafts.\(^6,\)\(^13\) Although living donors can provide certain proportion of organs, liver transplantation in living donors is technically more demanding and involves complicated man-power and logistical issues such as donor selection and safety.\(^7\) Furthermore, there are small but real risks (such as infection and biliary complication) for living liver donors.\(^14\) As the demand for liver grafts continually outstrips supply, it would be hard to reduce the proportion and number of living donor liver transplantations without an increase in donated livers from deceased donors.\(^5\) While organ donation is a charitable act, many of us are in fact potential organ donors after death (Box 1).

Box 1: Criteria for Deceased Organ and Tissue Donation\(^15\)

**General Criteria**
- There is no age limit in general
- Brain death donors can donate both organs and tissue
- When cardiac death occurs, the deceased can mostly donate tissue only, such as corneas, skin and bones
- The organ has adequate function
- Potential donor has no severe or systematic infection, such as HIV
- Cancers are contraindicated in organs, skin and bone donation, except primary brain tumours. However, the deceased cancer patients may donate cornea provided that they do not have lymphoma, leukaemia, myeloma, malignant tumours of ocular or peri-ocular area

**Criteria for Deceased Liver Donor**
- Deceased liver donor should meet the general criteria for organ donor
- There is no age limit for a brain death donor
- Deceased liver donor has normal liver function
- Deceased liver donor has no history of chronic liver disease
- Hepatitis carrier is not suitable for donation
To facilitate prospective voluntary donors to express their wish to donate organs after death, the Government launched the CODR on 24 November 2008. As at 31 October 2015, there were over 179 000 registrations. To become an organ donor after death, members of the public can register in the CODR (Box 2). The CODR provides multiple channels (including internet, email or fax) for the public to register their wish to donate organs after death more conveniently. It also enables their wish to be readily accessible to Organ Donation Coordinators of the Hospital Authority at the critical moment so that the latter can approach the family members as soon as possible to seek consent to carry out relevant examinations and operations in order to save patients in urgent need of organ transplantation. In Hong Kong, expressed consent from relatives of a prospective donor is required prior to organ and tissue retrieval. So it is of utmost importance that prospective donors tell their family and relatives about their wish to donate organs and tissues after death. Otherwise, the family or relatives may prohibit organ and tissue harvesting if they are unaware of their loved ones’ honorable wish.

Box 2:

For those prospective organ donors who wish to register their wish in the CODR, they can:

1. Register online at https://www.codr.gov.hk/codr/Internet.do ; or
2. Download and complete the organ donation registration form, and send it to the CODR System Administrator by post or fax.

   By post: CODR System Administrator,
   Department of Health, 21/F,
   Wu Chung House,
   213 Queen’s Road East,
   Wan Chai, Hong Kong

   By fax: 2127 4962

For enquiries concerning the CODR, please call 2961 8441 or email to codr@dh.gov.hk.
To have the gift of hope continue to snowball, persons who have registered on CODR can also help by encouraging family, relatives and friends to do likewise, learn the facts about organ donation and debunk the myths or misconceptions on organ donation (e.g. organ donation will NOT make medical personnel offer less treatment; organ donation will NOT result in body disfigurement as the incisions will be properly stitched up; in most cases they will be covered by burial clothing). To know more about organ donation, relevant news and activities in Hong Kong, please visit the designated website at http://www.organdonation.gov.hk, or the Facebook fan page “Organ Donation@HK” at https://www.facebook.com/organdonationhkeng.

References

Public Attitude on Organ Donation – A Qualitative Study in 2015
Speaker: Dr. LAM Tsz Sum
Factors affecting public’s willingness of organ donation

Milestones in Organ Donation Promotion in Hong Kong
Speaker: Dr. HO Chung Ping
Development of organ transplantation and organ donation campaigns in Hong Kong

Organ Donation and Transplantation in Hong Kong and Its Myths
Speaker: Ms. CHEUNG Suk Man
Transplant co-ordination service of the Hospital Authority and the challenges

Organ Donation and Transplantation: Why Bother Primary Care Physicians?
Speaker: Dr. CHAK Wai Leung
Primary care physicians’ role in promoting organ donation

Date & Time: 21 November 2015 (Saturday) 3-5pm
Venue: Lecture Theatre, G/F, Centre for Health Protection, 147C Argyle Street, Kowloon
Fee: Free of charge
CME: 2 pts. (MCHK/HKMA). Accreditation from various colleges pending
CNE: Pending

Officiating guests
Dr. KO Wing Man, BBS, JP, Secretary for Food and Health
Dr. CHAN Hon Yee, Constance, JP, Director of Health
Dr. LEUNG Ting Hung, JP, Controller, Centre for Health Protection

All Doctors & Nurses Are Welcome!
Download the registration form at: www.organdonation.gov.hk/od_seminar
Enquiry: 2527 8452 (Miss Joey LEE)