Complications of Liver Transplantation

By

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- Initially the liver transplantation was considered the last therapeutic option for critically ill patient and therefore premature mortality was very high.

- In the last decades with better selection and greater survival of patients new problems have been described to affect the liver transplant recipient.

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Complications of Liver Transplantation

- Immediate complications.
- Long term complications.

Immediate Complications of Liver Transplantation

- Technical complications.
- Medical complications.
- Graft dysfunction.
- Rejection.
- Infections

Long Term Complications of Liver Transplantation

- Chronic rejection.
- Renal failure.
- Arterial hypertension.
- Diabetes mellitus.
- Dyslipidemia.
- Obesity.
- Bone complications.
- Neurological complications.
- De Novo malignancy.

Immediate Complications

Immediate Complications of Liver Transplantation

- Technical complications.
- Medical complications.
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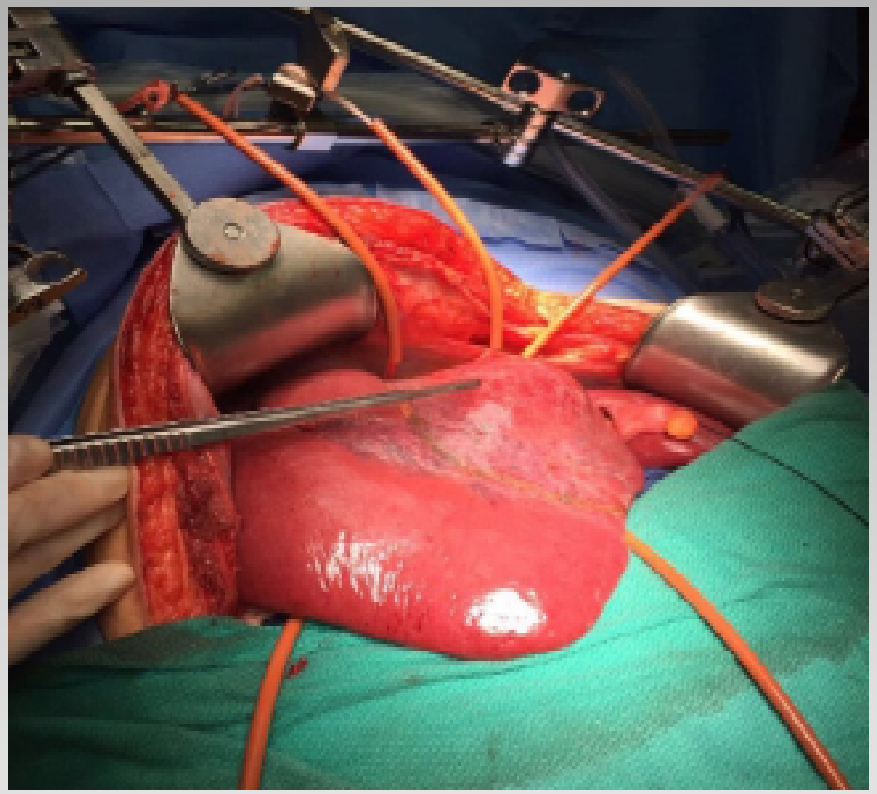

Technical Complications

1- Technical complications (26 %):

Arterial thrombosis (1.5-25 %)

(**If occurs early** leads to graft ischemia and necrosis –☮ ttt by thrombectomy or retransplntation)

(**If occurs later** lead to biliary complications)

Portal venous thrombosis (2-3 %)

(**If occurs early** leads to hepatic failurez –☮ ttt by thrombectomy or retransplntation)

(**If occurs later** lead to portal hypertension)

May be due to pre-LT PVT or splenectomy

Technical Complications

Biliary complications (30 %)

Early (Biliray leak & Bilomas)

Late (Biliary stricture)

Managed by ERCP , intervention radiology and lastly surgical intervention)

Hemorrhage

85 % subsides conservatively - 15 % needs exploration

Technical Complications

Medical Complications

2- Medical complications :

Hemodynamic complications (HTN : drug induced or excessive I.V. fluids)

Electrolytes imbalance (may leads to arrythmia)

Respiratory changes (Rt sided effusion prevalence 100 %

Medical Complications

Acute kidney injury

(causes : pre LTx renal impairement – hemoorhage - drug induced – sepsis.

Neurological affection :

Mostly drug induced

Less common : heomrrhage or thrombosis

3- Liver graft dysfunction :

- Causes : Primary graft dysfunction - rejection - surgical technical problems – drug induced – infections.

- The problem is : the DD and different methods of treatment.

Graft Dysfunction

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- Causes : Primary graft dysfunction - rejection - surgical technical problems – drug induced – infections.

- The problem is : the DD and different methods of treatment

Graft Dysfunction

Primary Graft Dysfunction (5-10 %)

- **Definition :** Poor liver function leading to mortality in the first 7 postoperative days (80 % mortality). The exact cause in not known.

- **Possible causes :** (advanced donor age , donor liver steatosis , prolonged cold ischemia time , reperfusion damage reduced graft size ....)

- **Diagnosis :** AST >5000 IU, low PC , HE, elevated amonia and lactic acidosis) . Liver biopsy : hepatic necrosis.

- **Management :** Prostaglandins for 48 hours if no improvement -> Retransplantation

Graft Dysfunction

Rejection

5-Infections : 50 % of LTx mortality is due to infections

1st month : Nosocomial

2nd -6th month : Viral & Opportunistic infection

After 6th month : pathogenic bacteria like general poulation

Predisposing factors for infections post transplant :

Immunosuppressives

CMV , EBV, HCV or HBV

Repeated surgical intervention

Malnutrition

Biliary leak and strictures

Blood transfusion

Exogenous infection

Prolonged hospital stay

Cytopenias

Infections

Long Term Complications

Long Term Complications of Liver Transplantation

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- Obesity.
- Bone complications.
- Neurological complications.
- De Novo malignancy.

Renal Failure

- Mostly related to calcineurine Inhibitors.

Risk factors :

- Advanced recipient age
- The need of renal support during surgery or immediately postoperative
- Infections.

- TTT : reduce dose of CNIs and/or add another non nephrotoxic drug.

Renal Failure

Diabetes mellitus :

- 4-20 % of cases develop *de novo* DM Mostly related to calcineurine Inhibitors or Steroids

Additional Risk factors :

- Advanced recipient age.
- Family history of DM.
- Obesity.
- HCV.
- Alcoholics.

Neurological Complications :

- Neurotoxicity due to CNIs.

- Symptoms :

  Tremors , insomnia , headache .

- Management : reduction of CNIs dose - Add anti-depressants.

De novo malignancy :

- 5-15 % of cases develop *de novo* tumour.
- High CNIs blood level in the 1st year post transplant increase this risk.
- **Prognosis :** More advanced when diagnosed, more aggressive course , high mortality rates.

- Most common :

Kaposi sarcoma.

Lymphoproliferative disorders.

Skin tumours.

Oropharyngeal tumours (in alcoholics).

- Everolimus use improves the one and five years survival from 47 and 19% to 77 and 35% respectively.

De novo Malignancy

Osteoporosios

- Cholestatic liver disease.
- Steroid therapy.
- Heavy alcohol intake.
- Malnutrition.

- TTT : Bisphosphnates

Bone Complications

Disease Recurrence

Disease Recurrence

- Recurrence of the primary liver disease may occur in patients transplantedfor viral hepatitis , HCC , autoimmune , chlolestatic or alcoholic liver disease.

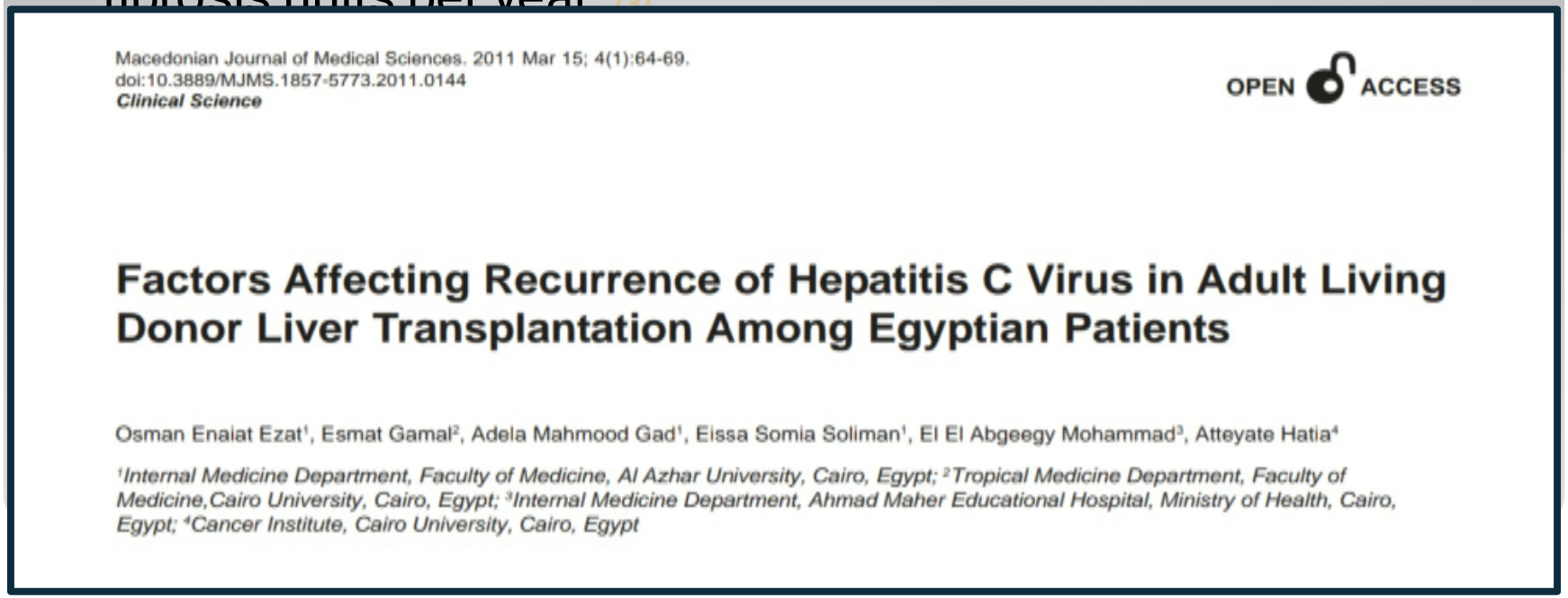
- HCV recurs in nearly all patients after liver transplantation.

- The natural history of chronic HCV disease recurrence after liver transplantation often is accelerated compared with nontransplantation patients with HCV disease. Progression to cirrhosis occurs in 10% to 30% in 5 to 7 years

- Once the cirrhosis is established , the risk of clinical decompensation is high in the short term (42% at one year) with a subsequent poor survival (< 50% in one year).

HCV Recurrence

- Average of fibrosis progression per year was **0.62** point on Ishak score (2).While in non transplant patients with chronic HCV hepatitis the overall rate of progression was **0.12** fibrosis units per year (2)



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Clinical Science

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Factors Affecting Recurrence of Hepatitis C Virus in Adult Living Donor Liver Transplantation Among Egyptian Patients

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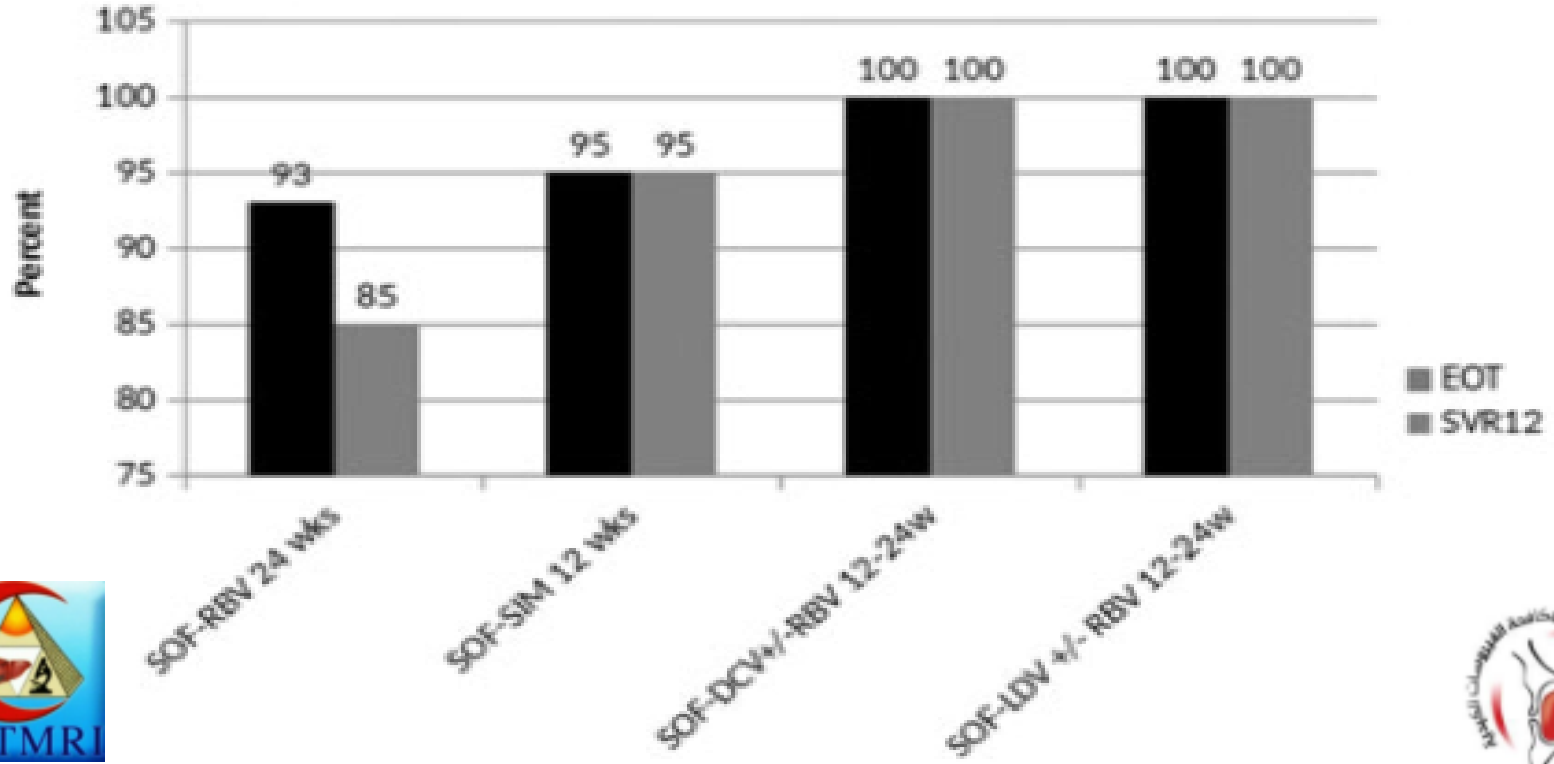
RESEARCH ARTICLE

WILEY JOURNAL OF MEDICAL VIROLOGY

Efficacy and safety of sofosbuvir-based therapy in hepatitis C virus recurrence post living donor liver transplant: A real life egyptian experience

Ayman Yosry[1] | Hadeel Gamal Eldeen[1] | Eman Medhat[1] | Mai Mehrez[2] | Naglaa Zayed[1] | Wafaa Elakel[1] | Reham Abdelmoniem[1] | Mona Kaddah[1] | Ashraf Abdelaziz[1] | Gamal Esmat[1] | Magdy EL-Serafy[1] | Wahid Doss[1]



One year survival

One year survival of LDLT worlwide is

73-79 %

Child score & Survival

Two-year survival (%)	One-year survival (%)	Points	Grade
85	100	5-6	A
60	80	7-9	B
35	45	10-15	C


Liver
Transplant
Thank You