

2ª SESIÓN CLÍNICA TELEMÁTICA INTERHOSPITALARIA Y DE ATENCIÓN PRIMARIA

MANEJO DEL FALLO HEPATICO. INDICACIONES DE TRANSPLANTE. CASUÍSTICA



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FALLO HEPÁTICO

Diagnóstico

Manejo

Indicación Tx

Casuística

HEPATOPATÍA CRÓNICA

FALLO HEPÁTICO AGUDO

- Evidencia de daño hepático con coagulopatía significativa sin hepatopatía crónica previa:
 - 1) Act. Protombina < 50% ó INR > 2 sin respuesta a la administración vitamina K en 8 horas
 - No es necesario coexistencia de encefalopatía (estadio terminal o preterminal).
 - 2) INR >1.5 acompañado de encefalopatía
 - Duración: inicio de síntomas a coagulopatía.
- Luir R, Abulebda K, Nitu ME et al. Intensive Care management of pediatric acute liver failure. JPGN 2017; 64: 660-670.
- Wlodzimirow KA, Eslami S, Abu-Hanna A, et al. Systematic review: acute liver failure—one disease, more than 40 definitions. Aliment Pharmacol Ther 2012;35:1245–56.
- Squires RH Jr, Shneider BL, Bucuvalas J, et al. Acute liver failure in children: the first 348 patients in the pediatric acute liver failure study group. J Pediatr 2006;148:652–8.

FALLO HEPÁTICO AGUDO: ETIOLOGÍA

Age	Most common causes
All patients	Idiopathic or indeterminate (incomplete evaluation)
	Drug toxicity or ingestions
	Infectious causes
	Autoimmune hepatitis
	Metabolic causes
Infants ≤ 1 year	Other causes
	Idiopathic or indeterminate
	Infectious (HSV 1 and 2—most common, enterovirus, adenovirus, hepatitis B, hepatitis C, EBV, CMV, HHV 6, parvovirus, etc.)
	Metabolic (fatty acid defects, mitochondrial defects, galactosemia, tyrosinemia, neonatal hemochromatosis, etc.)
Pre-adolescent	Other diseases—congenital heart defects, accidental drug overdose or ingestion
	Idiopathic or indeterminate
	Drug toxicity or accidental ingestion (acetaminophen, acetylsalicylic acid, valproic acid, etc.)
	Metabolic diseases (Wilson's disease, fatty acid oxidation defects, mitochondrial defects, etc.)
	Infectious causes (hepatitis A, B, C, D, E, non-A, non-B viral hepatitis, EBV, CMV, enterovirus, adenovirus, HHV-6, parvovirus, etc.)
Adolescent	Autoimmune hepatitis
	Drug toxicity, toxin ingestion, accidental or intentional drug overdose (acetaminophen, tetracycline, ecstasy, toxic mushroom <i>Amanita phalloides</i> poisoning, etc.)
	Autoimmune hepatitis
	Wilson's disease and other metabolic diseases
	Infectious diseases (hepatitis A, B, C, D, E, non-A, non-B viral hepatitis, EBV, CMV, etc.)

- INDETERMINADA: 40-50%
- LACTANTES (<7MESES)
 - Metabólica (<12 meses)
 - Infeciosa (VHS)
- PRE Y ADOLESCENTES
 - Tóxicos
 - Hepatitis autoinmune
 - Metabólicos (Wilson)
 - Infecioso (VHA)

• Luir R, et al JPGN 2017; 64: 660-670.

• Bhatt H et al Curreant Pediatrics Reports 2018; 6: 246-257

FALLO HEPÁTICO AGUDO: ESTUDIO ETIOLÓGICO INICIAL

Evaluation	Population	Studies
Biochemical	-All patients to assess severity of liver injury	-Coagulation profile: PT, PTT, INR, fibrinogen -Liver function test (AST, ALT, GGT, alkaline phosphatase, bilirubin, albumin, protein) -Coagulation factors: V, VII, VIII - Metabolic Panel: electrolytes, BUN, creatinine, blood glucose, calcium, phosphorous, magnesium - Blood gas - Complete blood count - Ammonia
Viral studies	-As clinically indicated. -Viral infections are one of the most common known etiologies of ALF in children <7 mo of age; herpes simplex virus is the most common infectious agent (6).	-Viral hepatitis serology: anti-HAV IgM, HBsAg, anti-Hbc IgM and IgG, anti HCV, anti-HEV - Viral Studies (polymerase chain reaction): Epstein-Barr virus, Cytomegalovirus, Enterovirus, Adenovirus, Human Herpesvirus 6, Herpes simplex virus 1/2, Parvovirus.
Drugs/toxins	-Acetaminophen overdose was the most common cause of drug-induced ALF (6).	- Urine toxin screen - Serum acetaminophen level
Metabolic studies	-Metabolic diseases are the one of the most common known etiologies of ALF in children below 1 year of age. -Wilson disease usually presents after age 3 years.	- Lactate, pyruvate - Serum amino acid profile - Urine amino acids/organic acids - Urine Succinylacetone - Ferritin, iron, total iron binding capacity - Carnitine level and acyl carnitine profile - Ceruloplasmin, 24-h urine copper
Immune function	-Autoimmune hepatitis typically affects adolescent patients; however, it can be seen in all age groups.	- Autoimmune hepatitis serology: antinuclear antibody, smooth muscle antibody, liver-kidney-microsomal antibody - NK cell function, perforin, granzyme B, sIL2, triglycerides
Histology/tissues studies	-As clinically indicated	- Liver biopsy - Bone marrow biopsy
Imaging studies	-As clinically indicated	- Ultrasound liver with Doppler exam - CT/MRI head (If indicated)

ALT = alanine aminotransferase; AST = aspartate aminotransferase; CT = computed tomography; HAV IgM = hepatitis A virus IgM; HBsAg = hepatitis B surface antigen; HCV = hepatitis C virus; HEV = hepatitis E virus; INR = international normalized ratio; MRI = magnetic resonance imaging; PALF = pediatric acute liver failure; PT = prothrombin time; PTT = partial thromboplastin time.

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FALLO HEPATICO AGUDO: DATOS COMPLEMENTARIOS (I)

- **TODOS LOS PACIENTES: Función y severidad afectación hepática:**
 - Hemograma.
 - Transaminasas, BT y directa, albumina, proteínas,
 - Coagulación (incluida Factor V y antitrombina III).
 - Estatus metabólico: iones, glucosa, calcio, fosforo Equilibrio ácido-base (gasometría), lactato
- **Estudio infeccioso**
 - PCR: VHS 1 y 2, VHS 6, parvovirus, enterovirus, adenovirus, VEB, CMV (Lactantes, < 7 meses)
 - Serología (PCR según sospecha) :VHA, VHB, VHC, VHD, VHE
 - Hemocultivo, cultivo hongos
- **Tóxicos**
 - Niveles de paracetamol
 - Tóxicos en orina pre y adolescentes y según sospecha)
- **Estudio metabolico**
 - Sideremia, IST, transferrina
 - Alfa 1 antitripsina
 - Ceruloplasmina, cupremia, cupruria (>3 años)
 - Aminoácidos en sangre y orina.
 - Tandem masa
 - Succinil acetona orina

FALLO HEPÁTICO AGUDO: DATOS COMPLEMENTARIOS (II)

- Autoinmunidad (adolescentes)
 - ANA. SMA. Anti-LKM. Anti-LC1. SLA,
 - Inmunoglobulinas totales
- Pruebas de imagen (según clínica)
 - Ecografía abdominal y doppler hepático (siempre)
 - RNM extrahepática
 - TAC y angioTAC: según clínica
- Estudio histológico (según clínica)
 - Biopsia hepática (no sangrado activo ni coagulopatía)
 - Estudio médula osea
 - Biopsia tejidos (glándula salivar)
- EEG: encefalopatía

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- Pham YH, Miloh T. Liver transplantation in children Clin Liver Dis 2018; 22: 807-821

FALLO HEPÁTICO AGUDO: MANIFESTACIONES Y COMPLICACIONES

Organ system	Complications
Central nervous system	<ul style="list-style-type: none"> - Hepatic encephalopathy - Cerebral edema - Intracranial hypertension
Cardiovascular	<ul style="list-style-type: none"> - Hypotension secondary to intravascular volume depletion - Volume-refractory hyperdynamic circulatory failure
Respiratory	<ul style="list-style-type: none"> - Acute respiratory failure - Pulmonary edema - Pulmonary hemorrhage - Acute respiratory distress syndrome (ARDS) - Endotracheal intubation and mechanical ventilation-associated complications
Renal	<ul style="list-style-type: none"> - Acute kidney injury (AKI) - Hepatorenal syndrome
Adrenal	<ul style="list-style-type: none"> - Relative adrenal insufficiency (RAI) - Hepatoadrenal syndrome
Hematological	<ul style="list-style-type: none"> - Coagulopathy not corrected by Vitamin K administration - Disseminated intravascular coagulopathy (DIC)
Gastrointestinal	<ul style="list-style-type: none"> - Gastrointestinal bleeding
Infectious	<ul style="list-style-type: none"> - Systemic inflammatory response syndrome (SIRS) - Pulmonary, urinary, and hematologic infections with bacteria such as staphylococci, streptococci, and enteric gram-negative bacteria
Fluid, electrolytes, and nutrition	<ul style="list-style-type: none"> - Hypoglycemia - Hyperammonemia - Intravascular volume depletion - Alkalosis and acidosis - Hyponatremia - Hypokalemia - Hypophosphatemia, hypocalcemia, hypomagnesemia - Catabolic state with negative nitrogen balance and increased energy expenditure

- SISTEMA NERVIOSO CENTRAL
 - Edema cerebral
 - Encefalopatía
- CARDIOVASCULAR
 - Depleción intravascular
- RESPIRATORIO
 - Hepatopulmonar
 - SDRA
- RENAL
 - Sid. Hepatorenal
- HEMATOLÓGICO
 - Coagulopatía
- GASTROINTESTINAL
 - Sangrado digestivo
- INFECCIOSO
 - SRIS
- METABÓLICO
 - Hiperamoniemia
 - HipoNa,K,P,Ca,Mg
 - Hiperatabolismo

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FALLO HEPATICO AGUDO: MANEJO GENERAL (I)

Problem	Management
Hyperammonemia	<ul style="list-style-type: none">- Consider lactulose and other antibiotics like rifaximin and neomycin (insufficient data to support use in ALF)- Ammonia-lowering agents like LOLA and LOPA are under investigation
Hepatic encephalopathy	<ul style="list-style-type: none">- Consider continuous renal replacement therapy- Supportive care in ICU- Minimal stimulation; avoid unnecessary interventions- Endotracheal intubation especially for stage 3 or 4 encephalopathy- Consider CT/MRI head for any acute mental status changes
Intracranial hypertension/cerebral edema	<ul style="list-style-type: none">- HTS (3–30%) to maintain target serum Na level to 145 to 150 mmol/L can be used as prophylaxis to prevent ICP and CE- Mannitol 0.25–1.0 g/kg IV bolus, repeated once or twice if serum osmolality < 320 mOsm/L- Invasive intracranial monitoring is currently controversial and not routinely recommended in PALF
Cardiovascular instability	<ul style="list-style-type: none">- Adequate fluid resuscitation with IV normal saline- Norepinephrine is the preferred choice of vasoconstrictor agent for volume-refractory instability
Respiratory failure	<ul style="list-style-type: none">- Vasopressin and its analogs can be used to potentiate the effect of norepinephrine- Endotracheal intubation should be performed for respiratory failure or for airway protection in advanced stages of hepatic encephalopathy- Ventilator strategies include low tidal volumes (5–8 ml/kg of predicted weight) and moderately elevated PEEP levels- Sustained hyperventilation should be avoided
Acute kidney injury/hepatorenal syndrome	<ul style="list-style-type: none">- Preventive measures include maintaining fluid balance while avoiding excessive diuresis, minimizing the use of nephrotoxic medications or IV contrast, and maintaining renal perfusion pressure- Continuous renal replacement therapy is preferred over intermittent forms
Relative adrenal insufficiency/hepatoadrenal syndrome	<ul style="list-style-type: none">- Trial of systemic steroids can be considered in patients with persistent shock refractory to volume resuscitation and vasopressor support
Coagulopathy	<ul style="list-style-type: none">- Plasma or platelet transfusions are only recommended prior to invasive procedure or during active bleeding
Ascites	<ul style="list-style-type: none">- Spironolactone is the diuretic of choice for patients with ascites who have respiratory compromise or discomfort due to fluid accumulation
Gastrointestinal bleed	<ul style="list-style-type: none">- H2 blocker or proton pump inhibitors are recommended for prophylaxis of gastrointestinal bleed
Infection/SIRS	<ul style="list-style-type: none">- Use of prophylactic antimicrobials or antifungals is currently controversial and is not routinely recommended- Aggressive surveillance with cultures and empiric antibiotics are indicated in the presence of SIRS, worsening encephalopathy, refractory hypotension, or signs of infection
Nutrition, hypoglycemia	<ul style="list-style-type: none">- Enteral nutrition with high caloric density formula to avoid excess free water- Parenteral nutrition can be a safe second line choice in patients who cannot be fed enterally- Continuous glucose infusion at 10–15 mg/kg/min might be necessary to maintain euglycemia in these patients
Electrolytes	<ul style="list-style-type: none">- Frequent monitoring and correction of electrolytes and acid-base balance is critical- Avoiding hyponatremia is critical to prevent cerebral edema in these patients

FALLO HEPÁTICO AGUDO: MANEJO GENERAL(I)

- **SISTEMA NERVIOSO CENTRAL**
 - Encefalopatía hepática: 75% I-II, 17% III y 7% IV
 - Soporte ventilatorio, circulatorio
 - Control amoniemia: farmacológica, detoxificación
 - Control fiebre y actividad convulsiva
 - Controversia: agentes osmóticos (SS3%), hipotermia, hiperventilación
- **CARDIOVASCULAR**
 - Mantener tensión perfusión
 - Baja resistencia vascular
 - Depleción intravascular
- **RESPIRATORIO**
 - Protección respiratoria y SNC
 - Edema y hemorragia pulmonar, SDRA

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- Squires RH. Acute liver failure in children. Sem Liver Dis. 2008; 28(2): 153-66

FALLO HEPÁTICO AGUDO: MANEJO GENERAL (II)

- **RENAL: aprox. 17.5% fallo renal**
 - Baja perfusión renal: vasoconstricción, depleción volumen
 - Nefrotoxicidad, infección-sepsis
 - Hepatorrenal
 - Mantener tensión perfusión renal: fluidoterapia, vasodilatación renal
 - Minimizar: nefrotóxicos (contrastes), sobrecarga volumen
 - Hemofiltración/intermitente
- **NUTRICIÓN**
 - Aumento aportes 20%
 - Glucosa 10-15mg/kg/min
 - Aporte proteico. Hiperamonemia
 - Fórmulas hipercalóricas/nutrición parenteral: exceso fluidos
 - Aporte grasas: enfermedades metabólicas

- Tujos SR et al. Risk factor and outcomes of acute kidney injury in patients with acute liver failure. Clin Gastroenterol Hepatol. 2015; 13(2): 352-9
- Luir R, et al. Intensive care management of pediatric acute liver failure JPGN 2017; 64: 660-670.
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FALLO HEPÁTICO AGUDO: MANEJO GENERAL (III)

- METABÓLICO
 - Control alteraciones electrolíticas:
 - **HipoNa**, hipoK, hipoCa, hipoP, hipoMg
- HEMATOLÓGICO
 - Coagulopatía y plaquetopenia
 - <5% sangrado significativo y <1% sangrado intracraneal
 - Hemoderivados: previo procedimientos y sangrado activo
 - rFVIIa: menor sobrecarga volumen. Enmascara la evolución de INR
- GASTROINTESTINAL
 - Sangrado GI: IBP, antiH2
 - Ascitis: diuréticos. Espironolactona. Evitar Sid. hepatorenal
- INFECCIOSO
 - Profilaxis antibiótica y fúngica (controversia)
 - Antibioterapia empírica en: SRIS, encefalopatía, shock, infección

Muñoz SL et al. Coagulopathy of acute liver failure. Clin Liver Dis. 2009; 13(1): 95-107

Luir R, et al. Intensive care management of pediatric acute liver failure JPGN 2017; 64: 660-670.

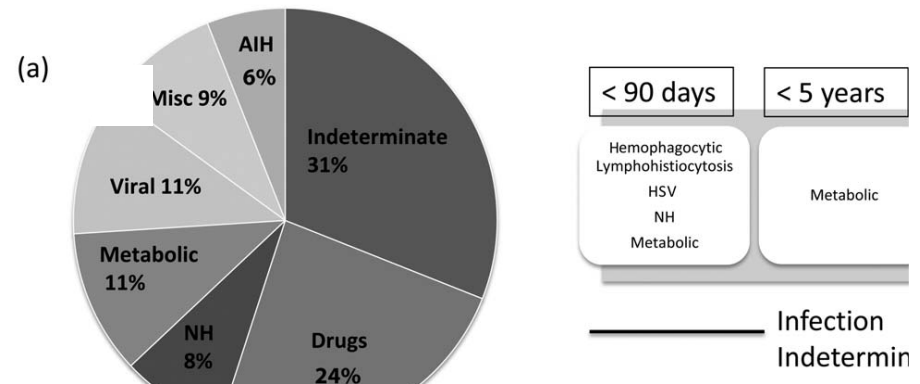
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FALLO HEPÁTICO AGUDO: TRASPLANTE HEPÁTICO INFANTIL

- **SISTEMA SCORES PRONOSTICOS (Timing)**
 - Indicación momento adecuado. Supervivencia sin Tx
 - Mortalidad > trasplantes hepatopatía crónica
 - Scores pronósticos no validados
 - King`s College Hospital Criteria
 - Pediatric End-Stage Liver disease (PELD)/MELD
 - Liver Injury Unit

- **ESTUDIO ETIOLÓGICO**

- Tratamiento específico
- Capacidad regeneración
- Contraindicación trasplante



Jain V, Dhawan A. Prognostic modeling in pediatric acute liver failure. Liver Tranplan. 2016; 22: 1418-1430

Luir R, et al. Intensive care management of pediatric acute liver failure JPGN 2017; 64: 660-670.

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FALLO HEPÁTICO AGUDO: TRASPLANTE HEPÁTICO INFANTIL

- VARIABLES PRONOSTICAS MAS VALIDADAS

- INR > 4
- BILIRRUBINA TOTAL > 13.7mg/dL
- RECUENTO LEUCOCITARIO > 9000/uL
- EDAD < 2 años

- OTRAS VARIABLES

- Factor V <20%
- Descenso transaminasas
- Encefalopatía hepática > Grado I

Variable	% mortality
Age < 2 years	96
Peak INR ≥ 4	93
Peak SBR ≥ 235 μmol	92
WBC ≥ 9 x 10 ⁹ /L	93



Variable	% mortality
Any 1 variable	76
Any 2 variables	93
Any 3 variables	96
Any 4 variables	100

- RETRASO INDICACION

- Permitir recuperación espontanea
- Encontrar etiología: tratamiento/contraindicacion
- Empeoramiento clínico – encefalopatía: Contraindicación

FALLO HEPÁTICO AGUDO: TRASPLANTE HEPÁTICO INFANTIL

• CONTRAINDICACIONES ABSOLUTAS:

- Fallo multiorgánico
- Sepsis no controlada
- Grave daño neurológico no reversible
- Enfermedad renal, cardíaca o pulmonar limitantes para la vida
- Enfermedad oncológica extrahepática
- Gran sospecha de enfermedad metabólica no susceptible de trasplante hepático

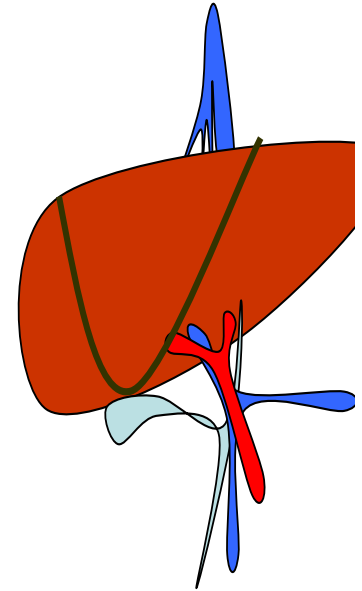
- Pham YH, Miloh T. Liver transplantation in children Clin Liver Dis 2018; 22: 807-821
- Mogul DB, Luo X, Bowring MG, et al. Fifteen-year trends in pediatric liver transplants: split, whole deceased, and living donor grafts. J Pediatr 2018;196: 148–53.e2.

FALLO HEPÁTICO AGUDO: DERIVACIÓN AL DENTRO DE REFERENCIA

Enfermedad hepática progresiva en la que no sea posible otra medidas terapéutica.

Supervivencia esperada inferior a la que se conseguiría con el trasplante.

TRASPLANTE HEPÁTICO



FALLO HEPÁTICO AGUDO: DERIVACIÓN AL DENTRO DE REFERENCIA PROBLEMÁTICA

ESCASEZ DE DONANTES PEDIÁTRICOS

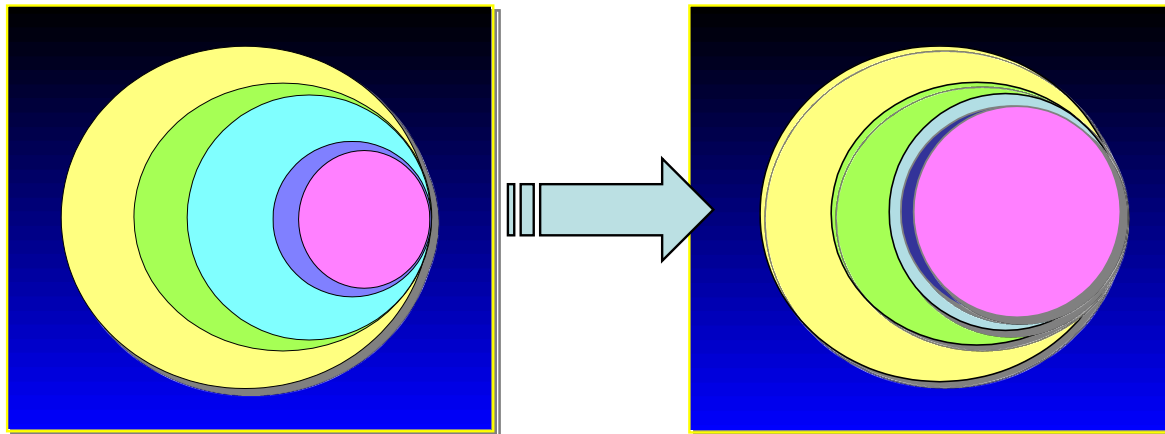
Donantes más frecuentes en la edad escolar y adulta.

Donantes neonatos presentan un mayor índice de NFP.

LAS HEPATOPATIAS SON MAS FRECUENTES EN LOS NIÑOS MENORES DE 2 AÑOS.

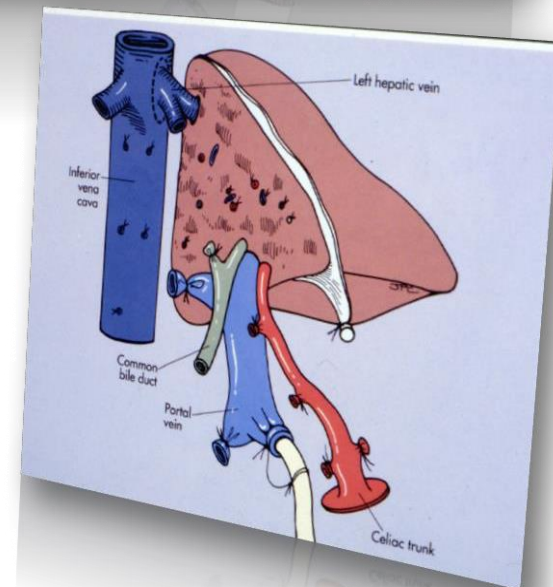
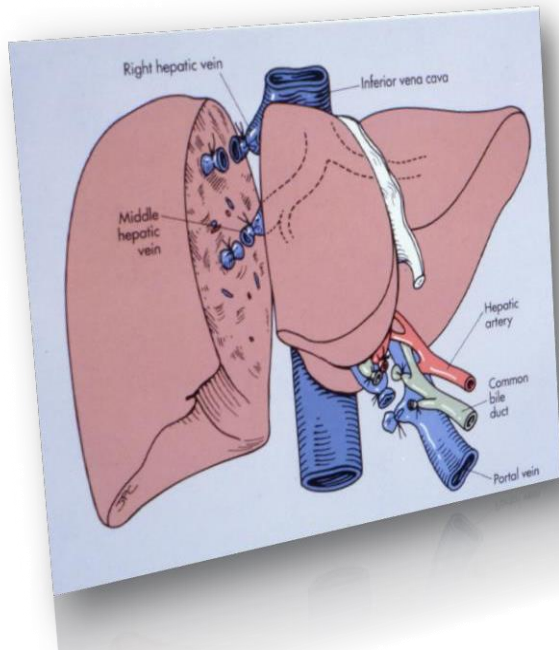
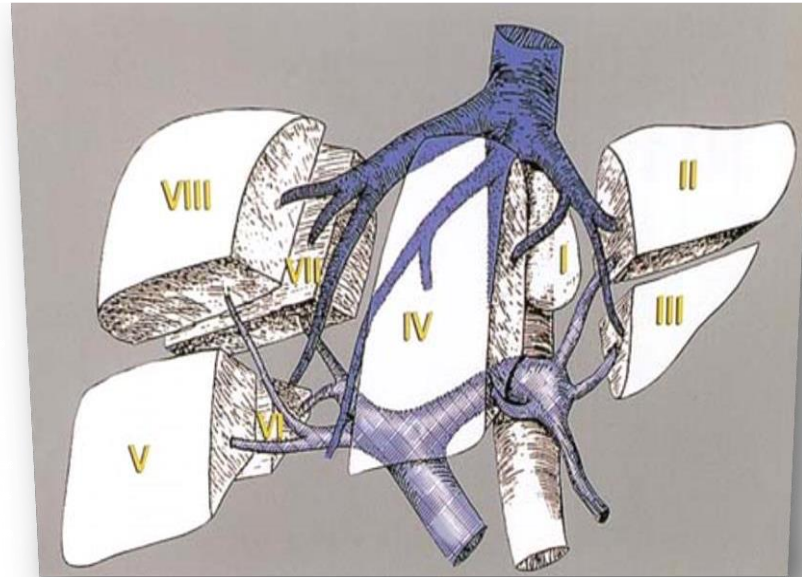
*Mayor Tiempo en LISTA DE ESPERA.
Mayor Deterioro Clínico.
Mayor Mortalidad en LISTA ACTIVA
Mayor Mortalidad POSOPERATORIA*

30 – 50 %



Niño con enf. Hepática.
Enviado para evaluación de Trasplante.
Inclusión en Lista Activa de Trasplante.
Trasplantados.
Supervivencia.

FALLO HEPÁTICO AGUDO: DERIVACIÓN AL DENTRO DE REFERENCIA PROBLEMÁTICA



FALLO HEPÁTICO AGUDO: TRASPLANTE HEPÁTICO INFANTIL

- Corporativo Andaluz Hepatología infantil (745992)
- Informe escrito con estudio detallado del paciente, situación actual y última analítica
- Realización de traslado a través de Gestoría del Usuario

gastrocordoba.hrs.sspa@juntadeandalucia.es

GRADO DE URGENCIA

- No comunicación a los padres de indicación Tx
Ideas falsas sobre la indicación/priorización
- Código 0: FHA o retrasplante en los primeros 30 días en menores de 14 años
- Hepatopatía previa. No urgencia 0
- Normativa ONT

FALLO HEPÁTICO AGUDO: INDICIONES DE TRANSPLANTE

Cholestatic Conditions	<ul style="list-style-type: none">• Biliary atresia• Sclerosing cholangitis• Parenteral nutrition-associated cholestasis• Alagille syndrome• Progressive familial intrahepatic cholestasis• Langerhans cell histiocytosis
Hepatitis	<ul style="list-style-type: none">• Hepatitis B• Hepatitis C• Autoimmune hepatitis
Metabolic Disease	<ul style="list-style-type: none">• Alpha 1 antitrypsin deficiency• Cystic fibrosis• Crigler–Najjar syndrome• Urea cycle defects• Organic academia• Maple syrup urine disease• Tyrosinemia• Wilson disease• Primary hyperoxaluria• Glycogen storage disorders• Hemophilia• Familial hypercholesterolemia• Certain mitochondrial disorders
Tumors	<ul style="list-style-type: none">• Hepatoblastoma• Hemangioendothelioma• Hepatocellular carcinoma• Sarcoma
Other	<ul style="list-style-type: none">• Cryptogenic cirrhosis• Gestational alloimmune liver disease• Budd–Chiari syndrome• Congenital hepatic fibrosis• Caroli disease• Drug induced• Hepatopulmonary syndrome
Acute Liver Failure	

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ATRESIA DE VIAS BILIARES EXTRAHEPÁTICAS

50% ETIOLOGÍA TRANSPLANTE HEPÁTICO INFANTIL
FUNCIÓN HEPÁTICA CONSERVADA
CIRROSIS E HIPERTENSIÓN PORTAL
DESNUTRICIÓN

Confirmación diagnóstica (gammagrafía)
Indicacion cirugía Kasai (Tiempo quirúrgico)
Estudio pretrasplante precoz
Planteamiento donante vivo

CASUÍSTICA DEL SERVICIO DE PEDIATRÍA

Hospital Universitario Reina Sofía de Córdoba:
Centro de referencia para trasplante hepático
en Andalucía (Ceuta y Melilla).

Programa de trasplante desde 1990

HOSPITAL UNIVERSITARIO REINA SOFÍA DE CÓRDOBA. CASUÍSTICA TRASPLANTE HEPÁTICO INFANTIL. DEMOGRAFÍA

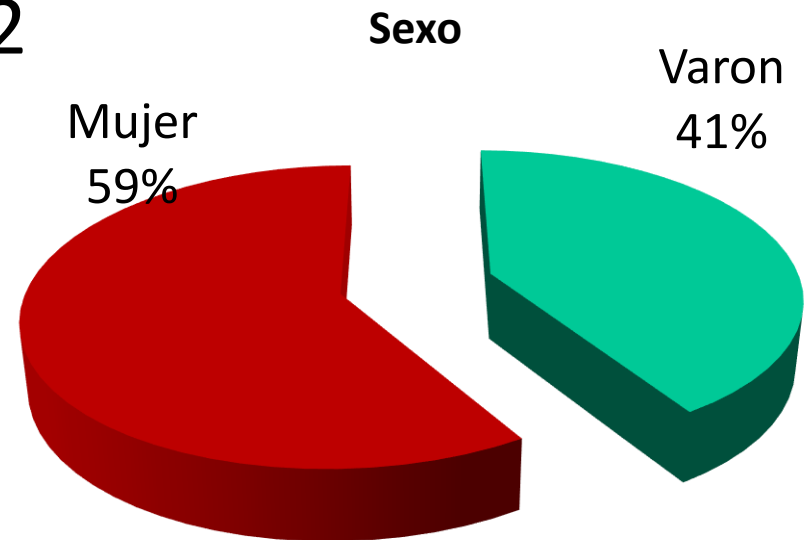
Trasplantes infantiles 202

Primeros trasplantes 171

Retrasplantes 31

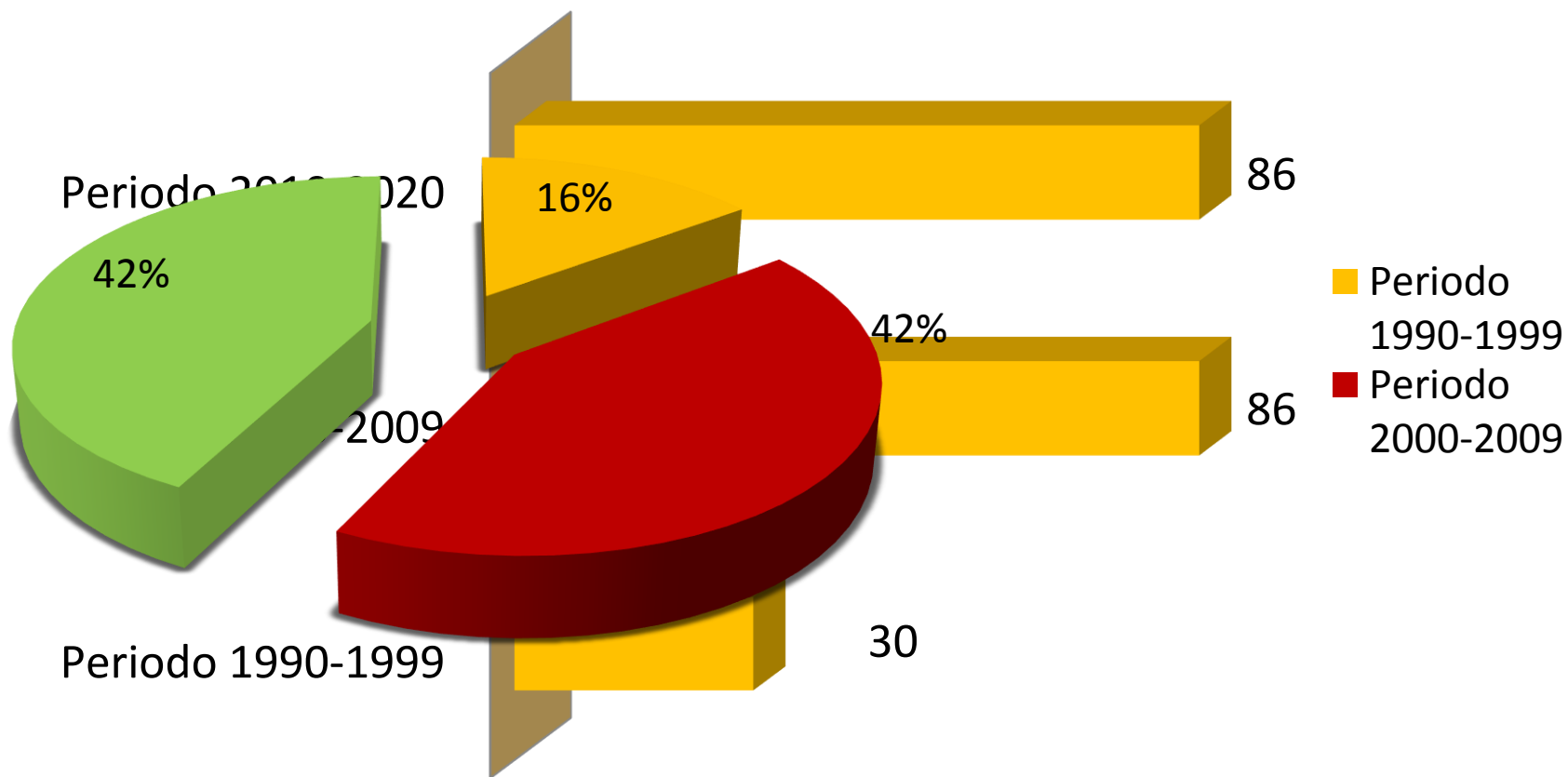
Varones 41 % (83)

Mujeres 59 % (119)



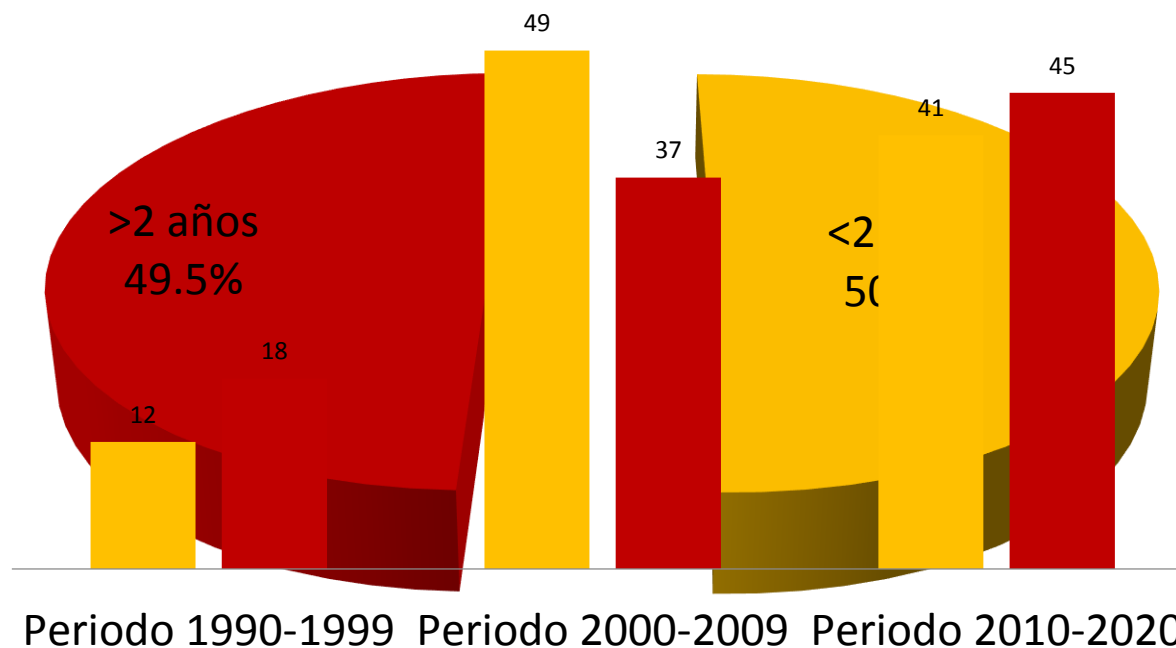
Edad: 4.7 ± 4.6 años

HOSPITAL UNIVERSITARIO REINA SOFÍA DE CÓRDOBA. CASUÍSTICA TRASPLANTE HEPÁTICO INFANTIL. RECOGIDA DE CASOS

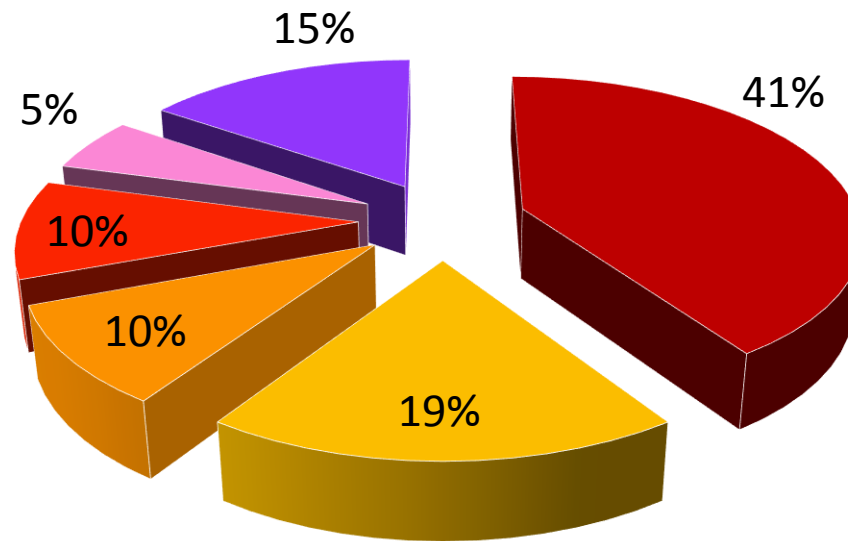


HOSPITAL UNIVERSITARIO REINA SOFÍA DE CÓRDOBA. CASUÍSTICA TRASPLANTE HEPÁTICO INFANTIL. RECOGIDA DE CASOS

■ <2 años ■ >2 años

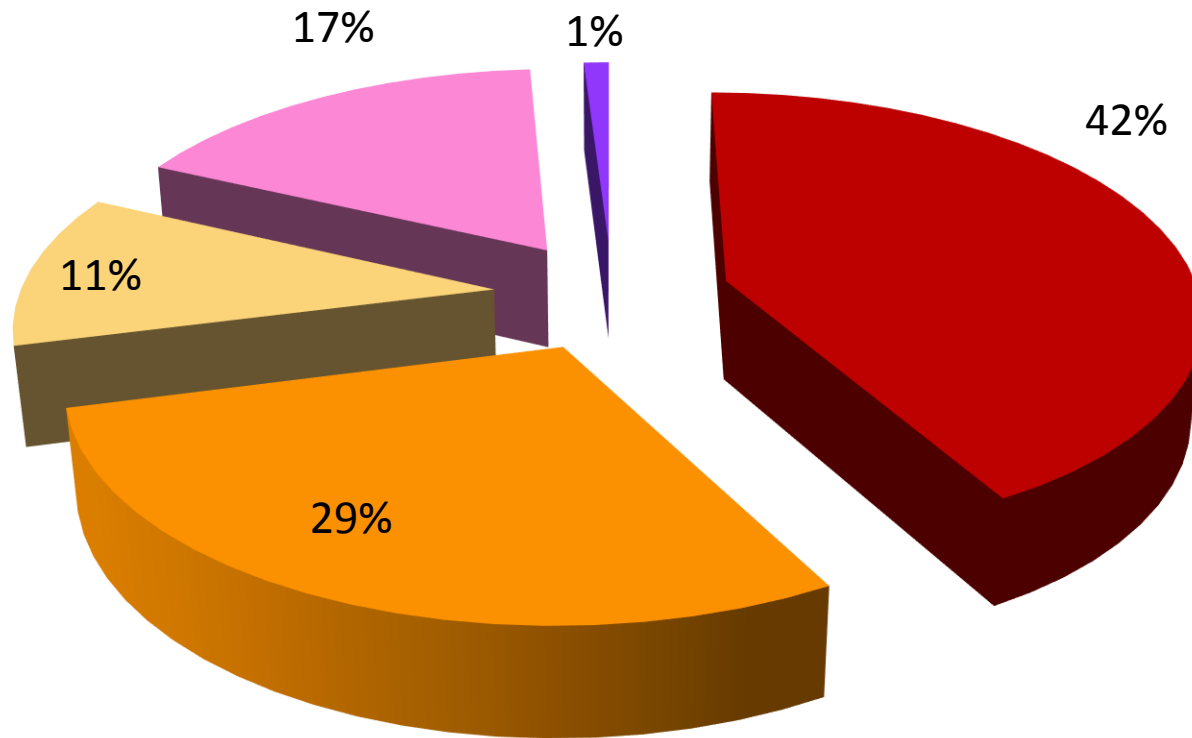


HOSPITAL UNIVERSITARIO REINA SOFÍA DE CÓRDOBA. CASUÍSTICA TRASPLANTE HEPÁTICO INFANTIL. ETIOLOGÍA



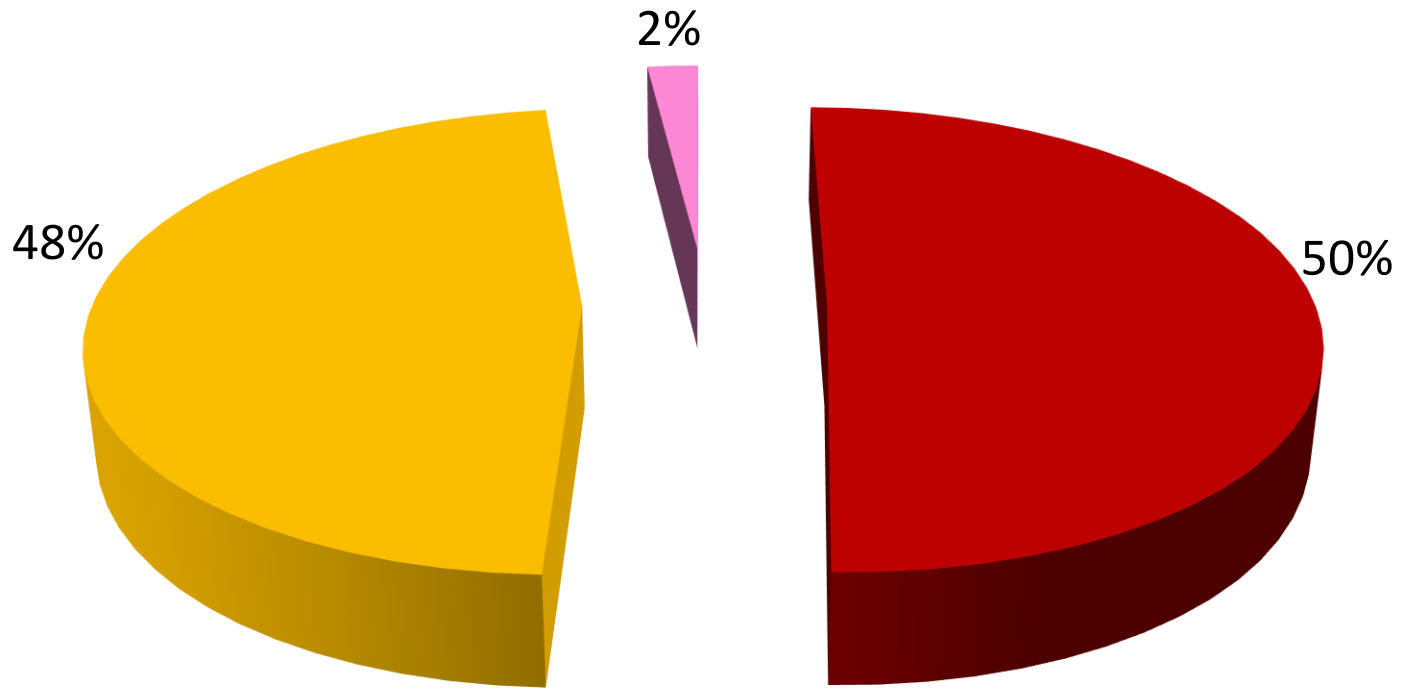
HOSPITAL UNIVERSITARIO REINA SOFÍA DE CÓRDOBA. TIPO DE TRASPLANTE HEPÁTICO INFANTIL

■ Completo ■ Reducido ■ Split ■ Donante vivo ■ Tx auxiliar



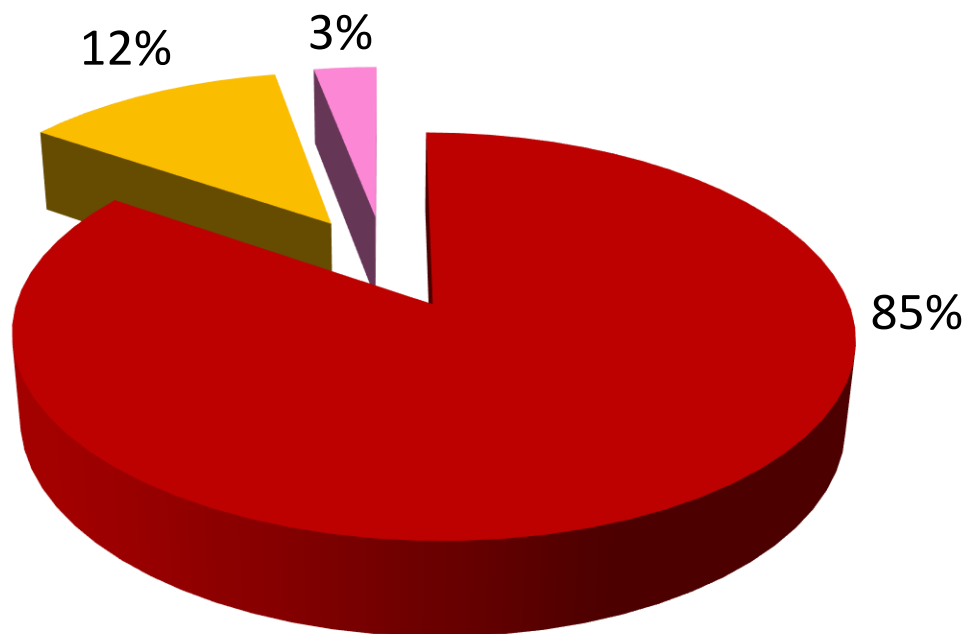
HOSPITAL UNIVERSITARIO REINA SOFÍA DE CÓRDOBA. TRASPLANTE HEPÁTICO INFANTIL. DONANTE

■ Andalucía ■ Resto de España ■ Extranjero



HOSPITAL UNIVERSITARIO REINA SOFÍA DE CÓRDOBA. TRASPLANTE HEPÁTICO INFANTIL. RETRASPLANTE

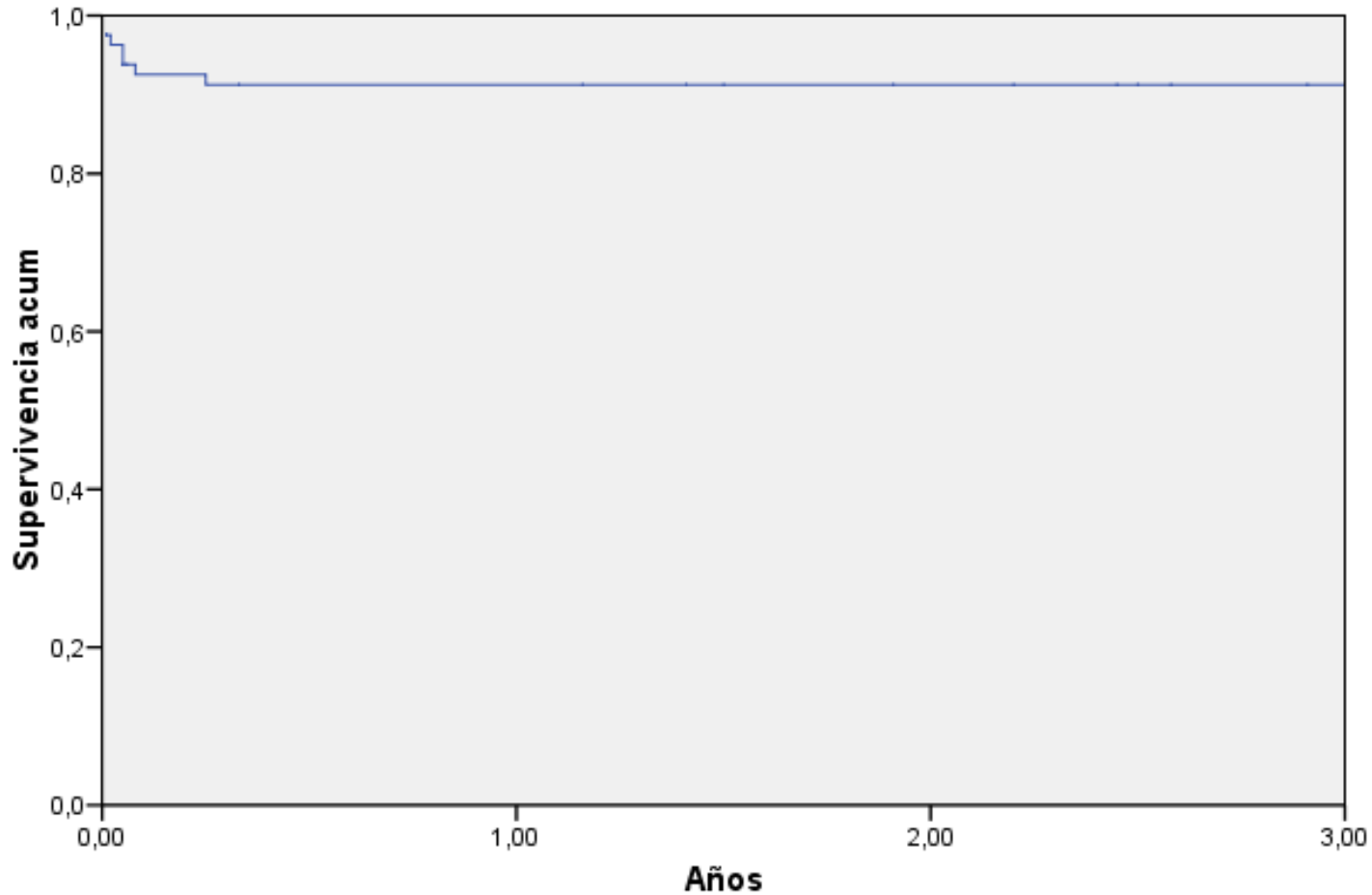
■ Único ■ 2 trasplantes ■ 3 trasplantes



HOSPITAL UNIVERSITARIO REINA SOFÍA DE CÓRDOBA. TRASPLANTE HEPÁTICO. INFANTIL SUPERVIVENCIA GLOBAL

Supervivencia a los 3 años: 91.5%

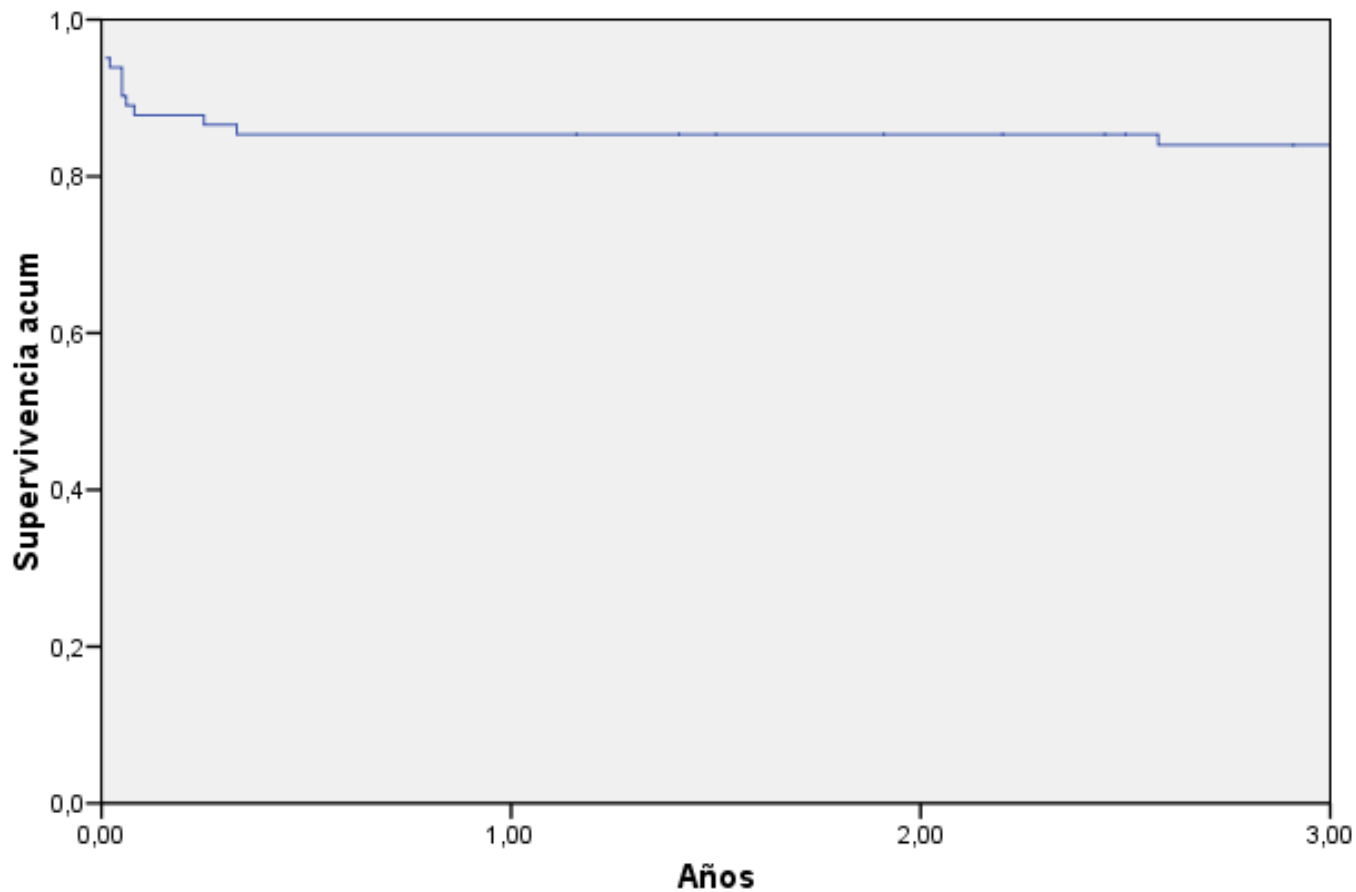
Función de supervivencia



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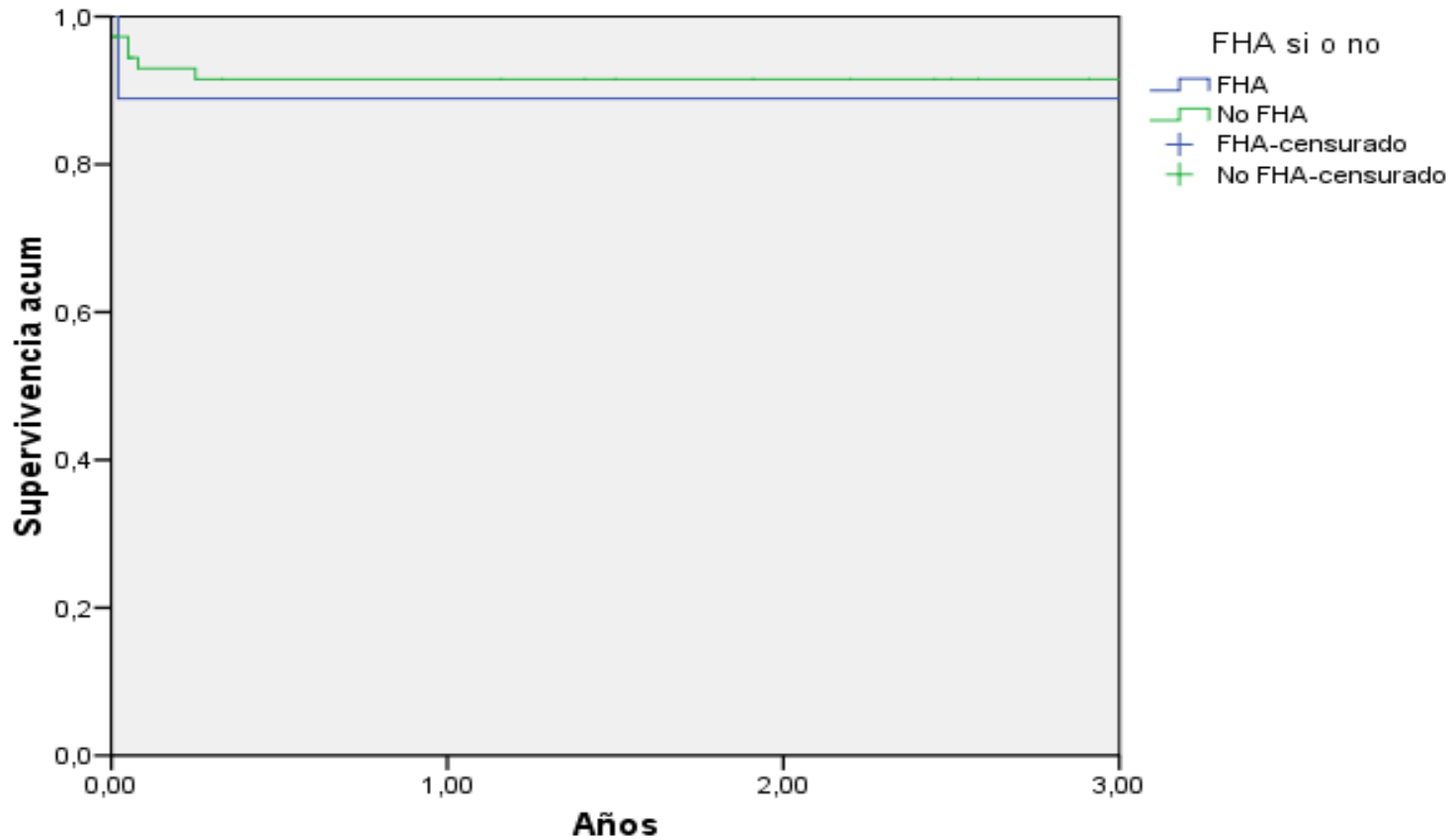
Función de supervivencia

Supervivencia a los 3 años: 84.1%



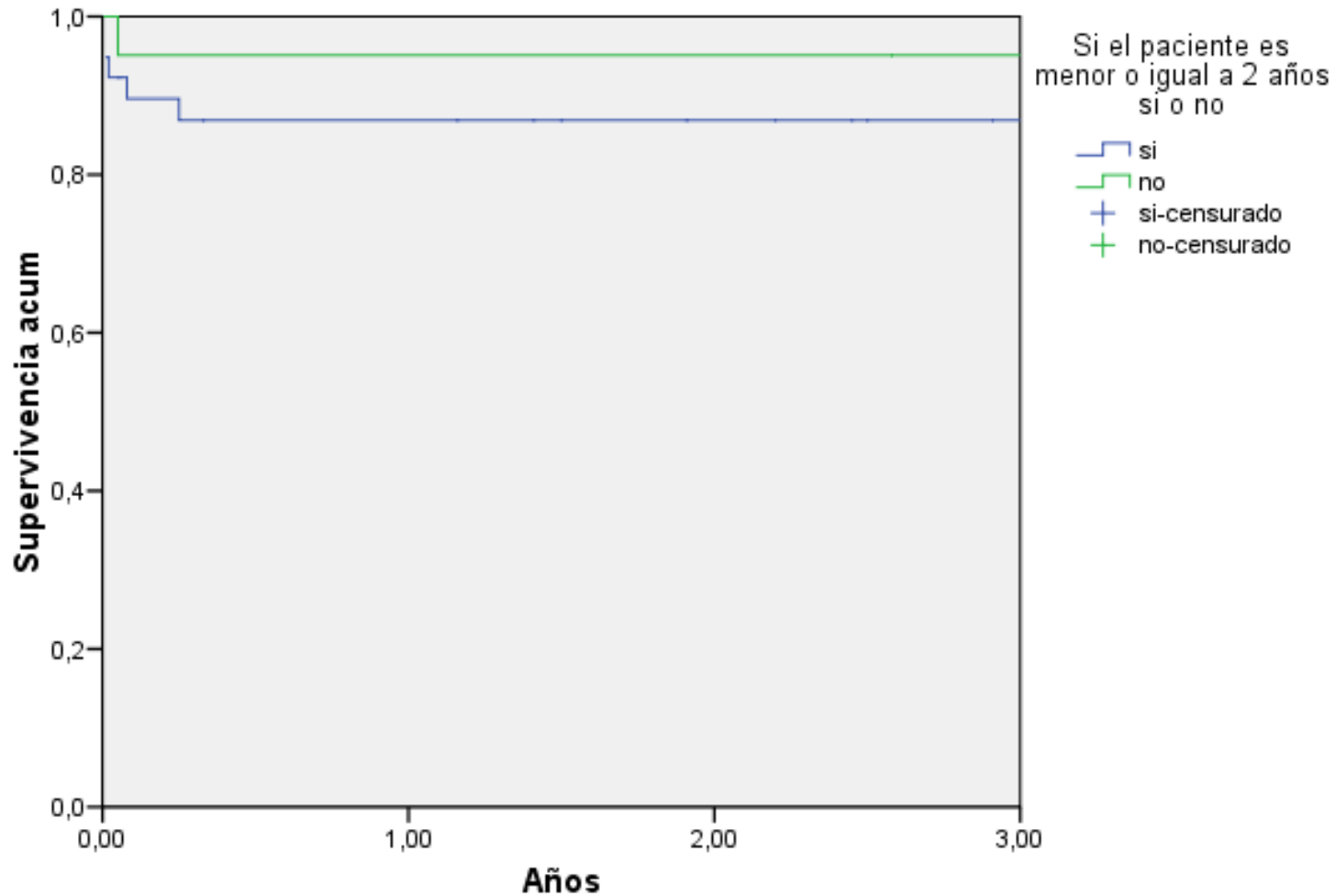
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Funciones de supervivencia

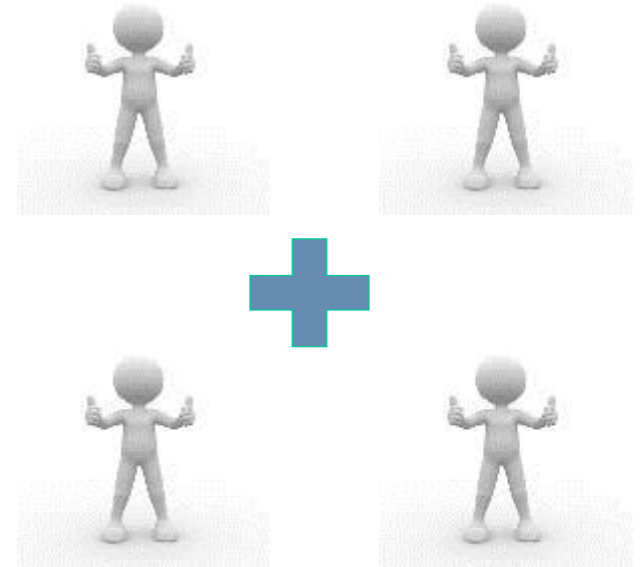
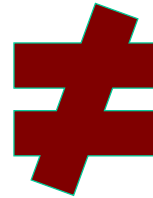


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Funciones de supervivencia



PARA OPTIMIZAR LOS RESULTADOS DEL TRASPLANTE HEPÁTICO EN ANDALUCÍA ES CLAVE EL TRABAJO EN EQUIPO ENTRE ATENCIÓN HOSPITALARIA Y PRIMARIA





Muchas gracias