Controversies and Recent Advances in Management of Biliary Atresia: An Evidence-Based Approach

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Introduction: Biliary atresia (BA) is a rare but serious neonatal liver disorder characterized by progressive fibrosis and obstruction of the bile ducts, leading to cholestasis and liver failure if untreated. This slide presents an evidence-based overview of current controversies and recent advances in the diagnosis and surgical management of BA.

Standard Management of Biliary Atresia:

The cornerstone of biliary atresia treatment is early surgical intervention via the Kasai portoenterostomy (KPE)

The procedure involves excising the fibrotic biliary remnant and connecting the liver's portal plate to a Roux-en-Y intestinal limb.

Postoperative care may include corticosteroids, antibiotics, and choleretic agents, though their use remains controversial.

Long-term monitoring is essential, and liver transplantation is indicated if jaundice persists or complications like cirrhosis or cholangitis develop.

Controversies in the Management of Biliary Atresia Management

1. Extent of Portal Plate Dissection
2. Use of Gallbladder in Reconstruction
3. Liver Mobilization
4. Slinging the Portal Vein
5. Suture Technique
6. Use of Steroids Post-Kasai
7. Use of Antibiotics
8. Use of Adjunctive Therapies
9. Timing of Kasai in Infants >100 Days
10. Primary Liver Transplant vs. Kasai First
11. Laparoscopic vs. Open Kasai
12. Revision Laparoscopic Kasai
13. Postoperative Monitoring & Transplant Timing
14. Screening at Birth

Diagnostic Workup

- Hematological, Biochemical, Radiological, Invasive
- **Imaging**: USG, HIDA, MRCP, ERCP, Liver biopsy
- **Per-operative Cholangiogram**:
- Non-visualization → BA likely
- Patent biliary tree → Other causes of cholestasis

Portal Plate Dissection Variants

- Original KPE: Limited dissection
- Modified KPE: Deep dissection into parenchyma
- Extended KPE: Reaches fossa of Rex and Rouvier's fossa at 2'o' clock and 10'o' clock respectively

Operative Controversies

- Intraoperative cholangiogram- proximal flow should be confirmed
- Liver mobilization- makes dissection easy at portal plate
- Portal vein slinging: Helps in dissection and anastomosis

Age at Surgery

- 30–100 days: Acceptable outcomes
- 100 days: Consider transplant
- Syndromic BA: Age significantly affects prognosis

Screening at Birth

- **Best Tool**: Stool color chart
- Direct/indirect bilirubin levels
- Early detection improves outcomes

Transplantation

- Indicated if jaundice persists >3 month
- Duration and dosing remain controversial
- Early transplant improves survival
- Techniques: Living donor, split liver

Conclusion

Laparoscopic or open PE did not change the jaundice free native liver survival rates over 2 decades, and 35%–60% of patients requires liver transplant.

No significant difference in Surgical outcomes of Laparoscopic PE vs Open PE in experienced hands. Robotics is under trial for complex procedures like PE.

Age is not confounding factor for surgical outcomes till the age of 80 days.