

Editorial

Open Access



Liver tumors in children

Daniel C. Aronson¹, Piotr Czauderna²

¹(retired) Department of Paediatric Surgery, University Children's Hospital Zürich, Zürich 8032, Switzerland.

²Department of Surgery and Urology, Children and Adolescents Medical University of Gdansk, Gdansk 80-803, Poland.

Correspondence to: Prof. Daniel C. Aronson, Department of Paediatric Surgery, University Children's Hospital Zürich, Steinwiesstrasse 75, Zürich 8032, Switzerland.

How to cite this article: Aronson DC, Czauderna P. Liver tumors in children. *Hepatoma Res* 2022;8:22.
<https://dx.doi.org/10.20517/2394-5079.2022.20>

Received: 15 Apr 2022 **Accepted:** 21 Apr 2022 **Published:** 7 May 2022

Academic Editor: Guang-Wen Cao **Copy Editor:** Tiantian Shi **Production Editor:** Tiantian Shi

This issue of *Hepatoma Research* is dedicated to liver tumors in Children, which is a quite rare group of tumors. Although the majority of pediatric liver tumors are malignant (57%), its main contributors, hepatoblastoma (HB) and hepatocellular carcinoma (HCC), only have an incidence of 1.6 per 1 million children, thus comprising 5%-8% of all pediatric solid tumors.

Our goal has been to establish an issue for the journal that gives a state-of-the-art overview of some aspects of the current knowledge within this field. The paper of Armengol *et al.*^[1] overviews some basic science, bridging molecular biology to the prognosis and treatment of HB. Surgical aspects are described by the literature review of Kościuszko *et al.*^[2], who give an overview of preoperative planning of liver tumor resections, Hiyama *et al.*^[3], who describe the consequences of marginal positive resection margins, and Calinescu *et al.*^[4], who describe the role of liver transplantation in Pediatric HB and HCC. Weeda *et al.*^[5] give an overview of where we stand with HCC, and Calinescu *et al.*^[6] describe the surgical perspective of undifferentiated sarcoma of the liver.

The way forward in the approach to rare tumors is an international collaboration. It has been this international cooperation between the four major Pediatric Liver Tumor Study Groups in Europe, the USA, and Japan (SIOPEL/GPOH, COG, and JPLT) that formed the tipping point to create the Children's Hepatic tumor International Collaborative (CHIC), leading to the establishment of a large international collaborative dataset, the CHIC database^[7]. This database contains such a large data set, that its analysis



© The Author(s) 2022. **Open Access** This article is licensed under a Creative Commons Attribution 4.0 International License (<https://creativecommons.org/licenses/by/4.0/>), which permits unrestricted use, sharing, adaptation, distribution and reproduction in any medium or format, for any purpose, even commercially, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license, and indicate if changes were made.



allowed to establish a new universal risk stratification system for HB^[8]. Concomitant international collaboration of pediatric pathologists made it possible to use the collected data to establish a new international histopathologic consensus classification for pediatric liver tumors as a whole, with particular focus on the histological subtypes of HB^[9,10].

During the same period, advances in chemotherapy options developed, an increased role of liver transplantation for unresectable tumors was established, and a web portal system was created at www.siopep.org for international education, consultation, and collaboration. These achievements are currently further tested and validated in the running Paediatric Hepatic International Tumour Trial (PHITT).

This small collection of papers on this subject invites the interested reader to further explore the existing literature on the achievements in the field of Pediatric Liver Tumors that have been established during the past decades^[11].

DECLARATIONS

Authors' contributions

Editorial written: Aronson DC

Suggestions and changes added: Czauderna P

Availability of data and materials

Not applicable.

Financial support and sponsorship

None.

Conflicts of interest

All authors declared that there are no conflicts of interest.

Ethical approval and consent to participate

Not applicable.

Consent for publication

Not applicable.

Copyright

© The Author(s) 2022.

REFERENCES

1. Armengol C, Cairo S, Kappler R. Bridging molecular basis, prognosis, and treatment of pediatric liver tumors. *Hepatoma Res* 2021;7:50. [DOI](#)
2. Kościuszko D, Niemirycz-Makurat A, Anzelewicz S, Gołębiewski A, Czauderna P. Preoperative planning in paediatric liver tumour surgery - a literature review. *Hepatoma Res* 2021;7:51. [DOI](#)
3. Hiyama E, Hishiki T, Watanabe K, Ida K, Yano M, Kurihara S, Kojima M, Saeki I, Inoue T, Tanaka Y. The prognostic evaluation of marginal positive resection in hepatoblastoma: Japanese experience. *Hepatoma Res* 2021;7:44. [DOI](#)
4. Calinescu AM, Héry G, Goyet JV, Branchereau S. A practical approach to pediatric liver transplantation in hepatoblastoma and hepatocellular carcinoma. *Hepatoma Res* 2021;7:59. [DOI](#)
5. Weeda VB, Murawski M. The future of pediatric hepatocellular carcinoma: a combination of surgical, locoregional, and targeted therapy. *Hepatoma Res* 2021;7:43. [DOI](#)
6. Calinescu AM, Wildhaber BE, Guérin F. Surgical perspective on treatment of pediatric undifferentiated sarcoma of the liver.

Hepatoma Res 2021;7:54. [DOI](#)

7. Czauderna P, Haerberle B, Hiyama E, et al. The Children's Hepatic tumors International Collaboration (CHIC): novel global rare tumor database yields new prognostic factors in hepatoblastoma and becomes a research model. *Eur J Cancer* 2016;52:92-101. [DOI](#) [PubMed](#) [PMC](#)
8. Meyers RL, Maibach R, Hiyama E, et al. Risk-stratified staging in paediatric hepatoblastoma: a unified analysis from the Children's Hepatic tumors International Collaboration. *The Lancet Oncology* 2017;18:122-31. [DOI](#) [PubMed](#) [PMC](#)
9. López-Terrada D, Alaggio R, de Dávila MT, et al; Children's Oncology Group Liver Tumor Committee. Towards an international pediatric liver tumor consensus classification: proceedings of the Los Angeles COG liver tumors symposium. *Mod Pathol* 2014;27:472-91. [DOI](#)
10. Mascaenhas L, Malvar J, Stein J, et al. Independent validation of the Children's Hepatic tumors International Collaboration (CHIC) risk stratification for hepatoblastoma. Liver tumors session, 50th Annual Meeting SIOP 2018, Kyoto Japan, November 18, 2018.
11. Aronson DC, Meyers RL. Benign and malignant liver tumors in children In: Paul D. Losty, Michael La Quaglia, Sabine Sarnacki, Jörg Fuchs, Tomoaki Taguchi (eds). *Pediatric Surgical Oncology* :eBook ISBN 9781351166126. [DOI](#)