



FUSE study: Functional sequelae in pediatric surgical oncology.

Introduction

Recent advances in pediatric oncology are increasing children survival over the years (1).

The growing number of survivors highlights the problem of chemotherapy late effects which affect two-third of children (2-4). The size of childhood survivors population in Europe is around 500000 citizens.

Long term follow-up is critical and controversial at transition age and different Networks and study groups as PanCare were created to face late adverse health-related sequelae that can appear several years after treatment completion (5).

Long-term survival could be interested by cumulative burden of condition-specific outcomes as described by SJLIFE Childhood Cancer Survivors study (6).

Long-term follow-up of children affected by pediatric solid tumors was usually conducted by oncologist, but several studies highlighted the importance of multidisciplinary teams (7).

Over the years pediatric surgeons focused their functional study research especially for fertility preservation and long-term kidney function in renal tumors (8-10), but recently some authors investigated long-term functional study for different tumors (11-13).

Pediatric solid tumors are characterized by heterogenous locations and different histotypes and only few studies reported relatively long-terms follow-up for tumors requesting extensive surgery with potentially post-operative functional sequelae (13-17).

Even if over the years pediatric surgeons developed techniques and implemented radiology tool to minimize mutilating surgery (18-20), the risk to develop long-term sequelae still exists.

The aim of this study is to involve the community of the International Society of Pediatric Surgical Oncology (IPSO) in order to evaluate the functional outcomes of the main pediatric solid tumors in a large cohort of children. The study will assess proper long-term follow-up for each type of pediatric solid tumors to prevent and to promptly manage functional sequelae.

Methods

The study will be conducted by the Young Committee of IPSO, under the supervision of the Scientific Office.

A first online survey using Google form platform (Mountain View, California, United States) will be conducted to assess a pictorial view of the current follow-up assessment.

A subsequent study to assess the actual surgical follow-up of principal pediatric solid tumors will be conducted by a junior and senior lead for each tumor; both investigators will be defined according to the IPSO Scientific Office.

Tumor-related functional sequelae will be collected using an international and recognized secure web database (REDCap, Vanderbilt University, 2201 West End Ave, Nashville, TN 37235, United States) after Institutional registration.

Collaborators will be listed as 'IPSO-collaborative group' and cited in the authorship as in the main international working groups (21,22) in addition to the principal investigators and the involved IPSO surgeons in the study writing, analysis and supervision. (Example:<https://pubmed.ncbi.nlm.nih.gov/32808678/>).

The solid tumors included in the study will be: hepatoblastoma (transplantation rate, liver function, biliary sequelae...), neuroblastoma (Dumbbel, opsomyoclonus , pelvic location,etc.), sacrococcygeal teratoma (bladder and fecal continence, cosmetic plastic surgery reintervention,etc.), chest wall tumors and pleuropulmonary blastoma (scoliosis, respiratory function,etc.), ovarian and testicular tumors (fertility, endocrine function,..), bladder/prostate/vaginal rhabdomyosarcoma (urological outcomes, sexual health,etc..).

Renal tumors will be excluded from the study in order to avoid any conflict with current open protocols (SIOP–RTSG, UMBRELLA study, etc.).

A final Delphy study consensus will be designed to standardize the proper surgical follow-up for each pediatric solid tumor and provide IPSO guidelines as best practice in surgical follow-up of pediatric solid tumors. Delphy study will be conducted by binomes of junior and senior leads.

Timeline summary

1. Online FUSE survey: Surgical Follow-Up assessment in pediatric solid tumors: a survey from the International Society of Pediatric Surgical Oncology
 - Study committee creation for the questionnaire development (Young committee + IPSO Executive board supervision).

- Selection of a young surgeon as Principal Investigator (PI) + collaborators for study development and analysis. Supervision by the Young committee and IPSO EB.
 - Google form distribution involving IPSO members (one surgeon/center).
 - Data collection and manuscript preparation.
2. First FUSE Retrospective study on Bladder/prostate rhabdomyosarcoma. (this type of tumor was first selected for its single site location, the possible study of different surgical managements and feasibility of functional outcomes study).
- Creation of a FUSE RMS group: selection of a young surgeon as Principal Investigator (PI) + collaborators for study development and analysis. Supervision by the Young committee and IPSO senior supervisors (Renowned surgeons in the field of prostatic/bladder/vaginal RMS).
 - FUSE RMS study group will develop a generic Institutional review board approval (IRB) for REDCap platform use.
 - Data collection and manuscript preparation.
3. Studies of the other pediatric solid tumors after completion of the first RMS study.

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IPSO Young Committee

Luca Pio (Chairman), Timothy Lutz (North America), York Tien Lee (Asia), Fernanda Kelly Marques de Souza (South America), Kagiso Batka-Makwinja (Africa), Alexander Siles Hinojosa (Europe)