Guidelines for Paediatric Cataract Surgery

Nepal Ophthalmic Society and Sagarmatha Choudhary Eye Hospital jointly conducted a National Paediatric Cataract Surgery Workshop at Lahan on 3rd/4th March 2015. 17 ophthalmologists from 10 eye hospitals participated.

The approach to paediatric cataract surgery is slightly different among various eye hospitals depending on the location, experience and post-operative follow-up rates. However, the following was worked out during the workshop to serve as a guideline to all eye hospitals in Nepal.

A treatment plan has to include specific regional circumstances and needs such as:
- Poor follow-up and compliance with spectacle wear and occlusion therapy
- Poor general health and malnutrition of children to be operated
- Lower cataract surgical rate in girls than in boys
- Good compliance with local anaesthesia in older children

Pre-operative assessment:
- Visual Acuity (PL, LEA, Snellen, CSM etc.) according to age, always try to quantify
- IOP (hand-held airpuff, rebound, applanation, impression)
- Retinoscopy / Brückner Test (paediatrician refer to ophthalmologist if lack of fundal glow)
- Slitlamp to find out structural anomalies
- Strabismus, Nystagmus (prognosis?), refer to paediatrician for any other associated symptoms
- Dilated fundus examination, if not possible B-Scan ultrasound, opinion from VR surgeon
- Biometry: hand-held keratometer, A-Scan axial length, IOL calculation with second or third generation IOL formula (SRK/T, Hoffer Q, Haigis), possibly use of immersion technique under GA, “IOL Master”, if available, in co-operative children
- Evidence of severe general health problems (malnutrition, TORCH). Consult paediatrician if in doubt and postpone surgery
Always consult paediatrician before surgery if child <1 year or if any syndromic children

Family history. Other siblings with cataract?

Consider no surgery in unilateral cataract with very poor prognosis (Persistant Fetal Vasculature, additional corneal or retinal pathology, „soft eyes“, very young child)

Informed consent:
Written consent is required from the parents / guardians after having been informed about the risks and benefits of the surgery.

- Explain Prognosis
- Need for permanent (bifocal) spectacles
- Need for frequent eye drops during the first days
- Signs of complications, pain, red eye, recurring opacity
- Explain that continuous post-operative care is essential for long-term success
- Schedule for follow-up visits
- Consider standardized educational Video for parents and guardians
- Record permanent contact details of parents / guardian (mail address, mobile phone, e-mail) in database for follow-up purpose
- Provide parents / guardian with hospital contact details (phone of paediatric department, email)

Surgery:

- Paediatric cataract surgery is different from cataract surgery on adults and more difficult. Therefore it requires a very experienced surgeon, trained in paediatric surgery.
- If child co-operates well, consider surgery in local anaesthesia.
- GA to be done by anaesthesiologist who decides on type of GA.
- Calculate desired refraction
  - in bilateral cataract: under-correction in children <1 year 20%, <3 years 10%, <6 years 5%, others near emmetropia
  - unilateral cataract: emmetropia
- Plan for IOL implantation in all children older than 6 months; use long-term reliable IOL model and material, affordable for the parents

Surgical steps:

- Sclero-corneal tunnel for control of astigmatism
  - Anterior capsule
    - stain with Trypan Blue
    - Continuous Curvilinear Capsulorhexis (CCC) with Utrata forceps, 23G pliers/forceps or capsule opening with vitreous cutter
  - Posterior capsule opening in all children
    - CCC with Utrata forceps or 23G pliers/forceps or opening with vitreous cutter
  - Anterior vitrectomy in all children
    - use only sharp cutter to avoid retinal traction (late retinal detachment)
- IOL if possible „in the bag“ or „optic capture/buttonhole“ i.e. haptic in sulcus and optic behind posterior capsule
- Intracameral cefuroxime (optional)
Make sure that eye is „watertight“ at the end of surgery, as sclera and cornea are very soft in children and „self-sealing“ incisions tend to leak. Prefer absorbable suture material, as permanent sutures will not be removed and may cause infection and vascularisation.

In bilateral dense cataract and uncertainty of follow-up plan for bilateral surgery (two separate surgeries) during one hospital stay whenever possible (2-3 days after surgery of the first eye).

Postoperative care:

a. Immediate Post-Op
- Daily examination (torch, direct ophthalmoscope, Slit Lamp, funduscopy)
- Keep pupil dilated
- Frequent steroid/antibiotic eye drops (1/2 hourly)

b. Before discharge
If follow-up is not guaranteed:
- Provide good quality spectacles to take home and if necessary low vision aids for school kids
- Provide spherical equivalent with overcorrection in children <3 years, and bifocal glasses to children >3-4 years
- Provide enough eye drops to take home to complete treatment over 6 weeks.
- „Strong“ words regarding follow-up to parents / guardian: minimum recommended follow-up periods: 6 weeks, 3 months, 6 months, then yearly
- Encourage for surgery of other eye and siblings if needed
- Electronic record keeping (computer data base) for follow-up reminders, quality control, and scientific purpose
- Data base should record all data from the eye examinations, surgery and the contact data of parents or guardians

Recommendations to increase Follow-Up:
- Use a specially trained Counsellor
- If child is from far away, consider follow-up close to its home by other eye hospital, Outreach centre, private ophthalmologist etc.
- Incentives (reimbursement of travel costs, free treatment and spectacles)
- No waiting at the hospital at follow-up
- Use of SMS, Email, phone and mail to send follow-up reminders
- Create interactive Smartphone-App with questionnaire to get information about how your patients are doing
- Educate and inform health care workers and teachers about paediatric cataract and the need for follow-up.
- Information videos about childhood cataract and make them widely available (Homepage, YouTube, screens at the hospital, in the waiting areas).