

Simultaneous versus Sequential Bilateral Surgery for Congenital Cataracts in University College Hospital, Ibadan

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Introduction: Globally, 1.4 million children are blind[1]. Congenital cataract is the leading cause in Africa^[2]. Type and timing of paediatric cataract surgery are important because of the risk of amblyopia. There is a global controversy on whether bilateral surgeries should be sequential (performed on separate days) or simultaneous (same sitting)^[3,4,5]. Though simultaneous surgery is associated with the rare risk of endophthalmitis and Toxic Anterior Segment Syndrome (TASS), advantages include less exposure to general anaesthesia, faster visual rehabilitation, no loss to follow-up for second surgery and/or rehabilitation, and lower costs.

This study compared both types of surgery at the University College Hospital, UCH, Ibadan to assist paediatric ophthalmologists and care-givers in decision-making.

Methods: The study retrospectively compared simultaneous and sequential surgeries for bilateral congenital cataracts in children younger than three years at UCH from 2010 to 2016. Study outcomes were length of hospital stay, direct costs, complications (anaesthetic, endophthalmitis, TASS) and management delays. Differences in mean hospital stay, direct costs and management delays for both groups were compared (Independent t-test, *P*-value <0.05 considered statistically significant).

Results: Forty of forty-two eligible cases had complete data with mean age at presentation of 44.1 weeks (SD 35.6, range 4-128 weeks). Twenty-five (62%) were males, 25 (62.5%) had cardiac associations and 24 (60%) had simultaneous surgery. All patients were reviewed by paediatric cardiologists prior to surgery. Table 1 shows differences in study outcomes between the groups. Three patients in the sequential group experienced delays accessing surgery in the second eye (four to twelve months), while one was lost to follow-up. There were no anaesthetic or serious ocular complications in both groups.

Table 1: Differences in study outcomes between simultaneous and sequential surgery groups

S/N	Feature	Simultaneous surgery	Sequential surgery	P-value
1	Length of hospital stay	Mean=6.3 days (4-10 days)	12.1 days (11-18 days) 92% longer	P<0.001
2	Direct costs	Mean =N47,000 (N45,200–N52,200)	Mean=N70,000 (N69,000–N73,000) 48.9% higher	P<0.001
3	Time interval-surgery to optical correction	Median=2.25 days (1-5 days)	Median=9 days (8-365 days)	P=0.076

Discussion: Both groups had no anaesthetic or serious ocular complications, but the sequential group had longer hospital stay and intervals to second surgery and/or visual rehabilitation, and higher direct costs. Previous studies have shown similar safety and efficacy profiles for both types of surgery^[4,6,7]. The main arguments against simultaneous surgery are the rare but devastating

risks of bilateral endophthalmitis and TASS. However, there are only four documented cases of bilateral endophthalmitis following simultaneous surgery in literature, all occurring following breach of standard protocol, and no documented case of bilateral TASS^[4]. The risks of endophthalmitis post adult and paediatric cataract surgeries are 0.04% - 0.2%^[8], and 0.07% - 0.45%^[9]

respectively. Our small sample size notwithstanding, the endophthalmitis rate in the paediatric ophthalmology unit in our centre in the last 10 years is 0%. Simultaneous surgery is associated with less exposure to general anaesthesia. This is important considering the fact that two-thirds of our patients had cardiac abnormalities. Based on our findings and evidence from literature, simultaneous surgery appears to be the preferable option especially in settings with inadequate access to health care and insufficient health care financing.

References

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