Improving *cataract surgery* workflow

Laminar air device ensures safe patient flow during COVID pandemic.
Dermot McGrath reports

The introduction of a mobile laminar air flow device has enabled one hospital in the United Kingdom to overhaul its cataract surgery workflow and continue to treat patients safely and effectively during the COVID-19 pandemic, according to a study presented at the 25th ESCRS Winter Meeting.

"We know that delaying surgeries can lead to worsening of patients' condition and an increased risk of complications, so our goal was to restart cataract surgery safely in our UK district hospital. We created an outpatient pathway to reduce the time spent in the department, eliminated the need for a waiting room and prevent increased transmission of COVID-19," said Dr Radhika Patel, Victoria Eye Unit, Hereford County Hospital, United Kingdom.

This was done by creating a streamlined pathway, a one-way system through the department where patients were booked in for surgery, administered dilating agents and then asked to wait in their car with a buzzer, explained Dr Patel.

"Once ready they were called back to the hospital, examined and seen by the surgeon, and taken straight into the clean room for their operation. After the postoperative care was explained to them, they were then discharged home," she said.

The key to a successful reorganisation of the cataract service was the deployment of the Operio Mobile (Toul Meditech), an innovative device that circulates ambient air through a HEPA filter to clean the air from bacteria and maintain a sterile environment around the patient at all times during the surgery.

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> Dr Radhika Patel

"The machine is not difficult to use at all," Dr Patel told *EuroTimes*. "It has an air filter that produces ultra-clean laminar air flow of a higher standard than most operating theatres, with an inbuilt foldable instrument tray. The sterile air produced by the unit is continually blown over the instrument tray and an operating field, and the sterile area is demarcated by a visible laser light. The portable nature of the equipment makes it very versatile and its use within an outpatient clean room makes the overall costs of surgery considerably less than in an operating theatre," she said.

Mr Simon Madge, a co-author and one of the five surgeons who participated in the study, agreed that the mobile air unit performed very effectively.

"From a scientific perspective, we need as a profession to remember that our historic obsessions with 'airflow' and 'changes' simply represent surrogate markers for air quality, which is far more important in reducing infection rates. In cataract and lens surgery, in many units such as our own, patients wear their own clothes and shoes into our procedure room and for the procedure; the Operio Mobile allows clean air where it is needed, with clearly no need to try and provide sterile air to the rest of the patient," he said.

An additional benefit, he added and a major advantage over conventional systems, is a new clean filter every time the machine is turned on.

"This gives surgeons incredible peace-of-mind for their patients and surgical results. The device is compatible with the Royal College of Ophthalmologists guidelines as a mobile laminar air flow device within a clean room setting," he said.

The study included a total of 515 patients undergoing phacoemulsification and IOL insertion using the same equipment in two clean rooms. Five experienced surgeons performed the operations which had varying surgical difficulty and included patients with a range of co-morbidities (22% diabetes, 10% glaucoma and 10% dense cataract).

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The results showed that the time spent in the department was well below the target of 90 minutes in patients with unilateral cataracts, with a total average time of 74.3 minutes, and 93.1 for bilateral cataracts. No intraoperative or postoperative complications were noted in 515 patients.

The first 100 patients were contacted by telephone two weeks after surgery and no patients reported any complications or any COVID-19 symptoms. There was also a very high patient satisfaction score of 9.5 from 53 patients on the Likert scale of 1 to 10. Most of the feedback was that the process was smooth, efficient and that they felt safe and enjoyed individual treatment.

Dr Patel told *EuroTimes* that the study had been undertaken between May and July 2020 as the UK was recovering from the first COVID-19 peak.

"It is difficult to say what the incidence of the COVID was at the time as community testing had not been rolled out to current levels but we were significantly affected with several admissions as a hospital during the first peak similar to the rest of the UK and also had a significant number of staff infected with the virus at the start of the pandemic. Therefore, it was very encouraging to have no cases during the two weeks after each treatment and no staff infections, as it meant that we had sufficient infection control," she said.