DEVELOPMENT OF A CLINICAL TOOL TO AID DEVICE SIZING, EASE OF ANGIOGRAPHY AND LIQUID EMBOLIC COMPATIBILITY

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Introduction A great variety of neurointerventional devices now exist and practitioners may not be familiar with compatibility especially of newer devices. As procedures become more complex and guide catheters increase in size more devices can often be inserted into a single catheter lumen. Predicting in advance whether

(i) they will fit and
(ii) whether angiography can be performed can be non-trivial.

If 3 or more devices are used in a single lumen the problem is mathematically complex (a problem termed ‘circle packing’) and compatibility cannot be calculated by summation of the diameters. If devices are unexpectedly incompatible they must be discarded, increasing cost of procedures.

Aims of study Produce a model to predict device compatibility in terms of diameter, length, space for cerebral angiography, and liquid embolic usage.

Methods A large database of commercially available devices (catheters, balloons, stents etc.) was compiled consisting of manufacturer provided and empirically observed data on sizing and compatibility. A computational model employing the Matousek-Sharir-Welzl algorithm was used to predict device fitting.1,2

Results The model was able to accurately predict device compatibility during procedures and was found to be a useful and easy-to-use clinical aid by neurointerventional practitioners.

Conclusions A tool was developed to aid in decisions regarding device sizing, ease of angiography, and liquid embolic compatibility. The tool and source code are freely available at https://www.neurotool.org/index.html. This is currently the only model that can accurately predict whether 3 or more devices will fit inside the single lumen of a larger device.

REFERENCES

P52 ESMINT/EYMINT E-FELLOWSHIP – EXPERIENCES FROM TWO SEASONS AND IMPLICATIONS FOR FUTURE NEUROINTERVENTIONAL TELE-OBSERVERSHIPS

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Introduction Remote attendance of trainees via video streaming (tele-observership, e-fellowship) emerges as an additional method to acquire knowledge in endovascular interventions.1–3 The ESMINT/EYMINT e-fellowship was launched in 2020 with a 6-month fellowship for 6 remote trainees with individual assignment to a neurointerventional specialist (mentor). The program is currently enrolling fellows for the third consecutive season.

Aim of study 1) Assessment of situational awareness during remote attendance. 2) Assessment of learning progress. 3) Identification of technical and organizational limitations of tele-observerships.

Methods Prospective evaluation of telestreamed cases from 2020 to 2022 via questionnaires for trainees and mentors.

Results From 06/2020 to 05/2022 a total of 311 cases were telestreamed by 11 high volume neurointerventional centers in Europe. While in the initial season 6 fellows were enrolled in a 1:1 assignment to a mentor, the second season included 22 fellows which were assigned as pairs to one mentor. A subset of 102 cases was prospectively and anonymously evaluated. A high level of situational awareness was reported in 75.5% of all cases. After finishing the program, the general improvement of neurointerventional knowledge was evaluated to be extensive (17%), substantial (50%), and moderate (33%). Procedural and technical knowledge were identified as fields of pronounced improvement. Limited access to telestreaming during regular duty hours at their hospital was stated by fellows as main hindrance to remote attendance.

Conclusions Tele-observerships may facilitate location-independent training of complex neurointerventional procedures through high levels of situational awareness. Future programs will have to incorporate individual training schedules to enable fellows to better attend complex elective procedures.

REFERENCES

Do you have any conflict of interest to declare?: No