Editorial
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Editors' Pick in January 2024

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Among the 13 papers published in the January issue of *Journal of Korean Neurosurgical Society* (*JKNS*) 2024, the following two papers, which deserve attention from readers, are selected by the editorial boards.

Predictive factors of first-pass effect in patients who underwent successful endovascular thrombectomy for emergent large vessel occlusion[2)]

Endovascular thrombectomy (EVT) stands as the established treatment for patients experiencing acute ischemic stroke (AIS) due to emergent large-vessel occlusion in the anterior circulation. Recent studies have revealed that the number of devices passes necessary for recanalization serves as a predictive factor for functional outcomes. Additionally, there is a suggestion that patients attaining a modified Thrombolysis in Cerebral Infarction (mTICI) score of 3 exhibit superior clinical outcomes compared to those with a score of mTICI 2b. This underscores the notion that achieving complete recanalization in a single maneuver may represent the primary treatment objective in current EVT techniques.

Therefore, the first-pass effect (FPE), defined as the achievement of a complete reperfusion of the AIS with a single pass of a device without rescue therapy during EVT, and its significant correlation with favorable outcomes has been well described in the literature[4)]. It is essential to identify predictive factors of the FPE to improve outcomes of the EVT by preoperatively modifying the relevant factors.

Among the 110 eligible patients with proximal EVLO who achieved successful recanalization after EVT, FPE was achieved in 31 (28.2%). Among the factors assessed, pretreatment intravenous thrombolysis (IVT), door-to-puncture interval, and the use of ballon guiding catheter (BGC) were shown as having significant impact on FPE. IVT may dissolve or soften the thrombus, thus making it easier to perform contact aspiration and stent retrieval. The inflation of the BGC might markedly decrease the impaction force arising from the pressure gradient across the thrombus and proximal systemic blood pressure bearing on the clot. This can boost the effectiveness of thrombectomy devices. Shorter DPT might be helpful in the context of time-dependent change of thrombus, which becomes more dense and more compact on time.

Although the number of cases is relatively small, it is noteworthy that they elucidated the predictive factors for better outcome for the EVLO patients, and its internal validity was supported by the homogeneity of the cohort (mTICI >2b) in contrast to the previous studies.

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Risk factor analysis of cryopreserved autologous bone flap resorption in adult patients undergoing cranioplasty with volumetry measurement using conventional statistics and machine-learning technique[3)]

Cranioplasty (CP) is an inevitable procedure after decompressive craniectomy for ascertaining the restoration of skull defect, which resulting in protection of brain and improving esthetic outcome[1)]. Cryopreserved autologous bone flap is one of the most frequently used material for CP, because of its cost effectiveness. However, bone flap resorption (BFR) is a troublesome problem after CP using autologous bone flap.

The authors performed conventional statistical analysis and machine learning technique to assess the risk factors for BFR. They used random forest with hyper-ensemble approach for machine learning. Volumetric analysis was applied for assessing the size of bone flap and degree of BFR. Among the 94 patients enrolled, about 20% were classified as having BFR. It was shown that initial autologous bone flap of over 60 mL could be a possible risk factor for BFR whereas demographic data and medical histories did not have any significant impact.

It is noteworthy that it was shown as the size of the bone flap increases, the risk of BFR also increases from the volumetric analysis and conventional statistical method and machine learning technique. This finding is to be supplemented by prospective analysis, which can detect chronological change of replaced bone flaps.

AUTHOR'S DECLARATION

Conflicts of interest

No other potential conflict of interest relevant to this article was reported.

Author contributions

Conceptualization : HJY; Data curation : HJY; Formal analysis : HJY; Methodology : HJY; Project administration : HJY; Visualization : HJY; Writing - original draft : HJY; Writing - review & editing : HJY

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