

The total score ranges from 0–11. The higher the total score, the greater the risk of difficult peripheral access [10].

Positive aspects of the tool include its focus on the specific needs of cancer patients, high inter-rater agreement ($\kappa > 0.61$ for most items), the possibility of rapid use in routine clinical practice, and the ability to identify patients who may benefit from the early insertion of a central venous access. DIVA-CP thus supports the prevention of venous damage, reduces the risk of extravasation, and contributes to a safer administration of chemotherapy. The negative aspects of the tool are primarily related to its pilot nature and the fact that the research took place in a single centre, thus requiring external validation. Furthermore, the authors note that the combination of binary and ordinal items is not ideal for factor analysis, and the tool requires further methodological refinement. Unfortunately, the scale also does not offer cut-off values, and risk categories are not defined. In clinical practice, DIVA-CP can significantly facilitate decision-making about the optimal type of venous access in chemotherapy patients. Due to the increasing incidence of oncological diseases and the need for effective and comprehensive care for these patients, the authors propose the translation and validation of the tool in the CR for cancer patients.

Discussion

The article provides an analysis and comparison of the most frequently cited predictive tools for identifying adult DIVA patients in the context of various clinical settings. The authors' goal was not only to summarize the available evidence, but also to evaluate the application potential within the Czech healthcare setting, where officially translated and externally validated tools for the adult population are currently lacking. The same situation exists in paediatrics, which is not the focus of this study.

An analysis of the selected predictive scales demonstrates that no universal "gold standard" for adult patients to identify DIVA across all settings currently exists. The above-mentioned scales reflect the specific needs of the given clinical environment and population.

The **A-DIVA scale** provides a simple binary score (0–5) with a clear risk stratification of failure on the initial peripheral vein cannulation attempt. The scale was successfully externally validated in a multicentre setting, which increases its generalizability in routine hospital practice. The practical utility of the scale is supported by the implementation study by Arangoa-Miller et al. who reported that introducing it into documentation for cancer patients improved decision-making about venous access selection, reduced the risk of extravasation, and enhanced collaboration between nurses and physicians. The authors described the tool as easy to use and suitable for routine clinical practice [11]. **EA-DIVA** broadens the scope to include factors relevant in preoperative and perioperative care, but currently only offers internal validation from a single institution. Its strength (and simultaneous limitation) lies in a more complex model; a disadvantage is the potential subjectivity of some items (skin, vein findings) and limited transferability without external validation. The tool has not yet been tested by another research team. **A-DICAVE** offers a highly pragmatic three-item scale with rapid administration for the emergency department,

but here too, the limitation is single-centre validation and the risk of subjectivity in assessing vein visibility and palpability. The study by Pinkham et al. confirms that A-DICAVE is an easy-to-use predictive tool that strengthens the rationale for using ultrasound in at-risk patients [12]. The **SAFE Rule** is a synthetic screening rule (not a scoring scale) created from meta-analytical findings. The benefit of the SAFE Rule is its simplicity and universal applicability; a disadvantage is the absence of weighted scoring and, therefore, formal stratification. The SAFE Rule has not yet been independently validated in clinical practice; however, its principle of early identification of at-risk patients and escalation of care is consistent with the expert position of the Infusion Nurses Society, which in its Infusion Therapy Standards of Practice (2024) recommends early recognition of difficult venous access and the use of advanced techniques before repeated failed cannulation attempts [13].

The last scale analysed in this study is **DIVA-CP**, which represents a specifically oncology-focused tool that integrates patient characteristics and their peripheral venous system and reflects cumulative venous strain during chemotherapy. Pilot validation identified ten items across four factors and showed significant inter-rater agreement for most of the items. The score range of 0–11 quantifies the risk of difficult peripheral access, albeit without established cut-off values for clinical stratification. In the context of outpatient chemotherapy, DIVA-CP thus complements more generally focused tools and can aid in protecting the peripheral venous bed through timely consideration of ultrasound-assisted cannulation or early indication of central venous access in cancer patients. External validation of the tool is also required here. The DIVA-CP tool has so far been evaluated only within the authors' original pilot study, and no independent external validation or confirmation of its clinical utility by other research groups is currently available.

From a **methodological standpoint**, the compared tools differ in item construction (binary vs. multi-level/ordinal) as well as the scope and quality of validation (internal vs. external; single centre vs. multi-centre). For DIVA-CP, the authors point out the limitation of the pilot phase, high inter-rater agreement, and the mixed nature of the items, which complicates factor analysis. They emphasize that exploratory factor analysis should be primarily applied to continuous variables and that tetrachoric correlations are more adequate for binary items. For follow-up research, they recommend converting binary items to ordinal scales (e.g., "very well visible/partially visible/non-visible veins") to improve the psychometric properties of the tool.

This consideration is generally relevant for other scales as well, where the subjective assessment of vein visibility and palpability represents a potential source of inter-rater variability. Formal anchoring in clearly defined levels could increase tool reliability. Another common theme is the degree of subjectivity for items requiring clinical judgment (e.g., "expected difficult cannulation" in A-DIVA or "rolling/tortuous vein" in EA-DIVA). To maintain the predictive capability of these tools in routine operations, it is essential to ensure high-quality staff training and unify the assessment method. Regular verification of inter-rater reliability is also ideal.

From a **practical perspective** regarding tool utilization, a differentiated approach is suggested: (i) rapid and simple screening using