EFEKTIVITAS PENGGUNAAN SKOR DIVA DALAM MENILAI KESULITAN AKSES INTRAVENA PADA PASIEN DEWASA LITERATUR REVIEW

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Abstract: *Introduction: DIVA Score, known as a level of difficulty guidance for intravenous access, is designed to assist healthcare workers in reflecting the likelihood of successful PIVC implantation or the risk with certain outcomes in patients and provide information for their decision-making. Approximately 90% of hospitalized patients receive peripheral intravenous catheters, to administer fluids, parenterals and medications. However, for healthcare professionals, difficulties in obtaining devices are sometimes frustrating, challenging, and time-consuming, as well as significant costs associated and often requiring the involvement of other healthcare professionals for further action. In addition, some attempts are associated with complications such as extravasation and phlebitis, including peripheral intravenous tissue depletion and treatment delays. Objective: Looking for further action for failed PIVC insertion. Methods: A search was performed in research for DIVA Scores in Adults. Twelve publications were identified. Results: USG guided has great results in successful attempts for PIVC in high DIVA Score patients. Conclusion: USG can be the treatment of choice for Difficult Intravenous Access patients instead of medical workers' experience or internal factors from the patients*

PENDAHULUAN

Saat ini DIVA Skor, yang dikenal sebagai panduan tingkat kesulitan akses intravena untuk pasien dewasa, masih kurang dalam hal implementasi. Berdasarkan data klinis yang tersedia, skala ini dapat digunakan untuk mengidentifikasi pasien yang mungkin mengalami masalah akses intravena. Model prediksi ini mudah diakses dan dapat meningkatkan praktik klinis serta bertujuan untuk kenyamanan pasien. Secara umum, model prediksi DIVA Skor dirancang untuk membantu penyedia layanan kesehatan dalam memperkirakan kemungkinan keberhasilan pemasangan PIVC atau risiko dengan hasil tertentu pada pasien dan memberikan informasi untuk pengambilan keputusan mereka. Sekitar 90% pasien rawat inap menerima kateter intravena perifer, untuk pemberian cairan dan parenteral serta obat-obatan. Ketika inserter tidak dapat menemukan lokasi vena target melalui palpitasi atau visualisasi, kanulasi dapat dilakukan dengan menggunakan sebagai alternatif.

Namun, pemasangan PIVC dapat dianggap sebagai prosedur yang sulit bahkan bagi layanan kesehatan berpengalaman profesional, akses vena memerlukan beberapa upaya

untuk berhasil melakukan pemasangan PIVC, yang mengakibatkan trauma dan pengalaman yang menyakitkan, mengganggu pengalaman perawatan mereka, dan berpotensi mengurangi kepercayaan mereka pada profesional kesehatan. Bagi para profesional kesehatan, kesulitan dalam memperoleh peripheral terkadang membuat frustrasi, menantang, dan memakan waktu, serta signifikan biaya terkait dan seringkali memerlukan keterlibatan profesional kesehatan lain untuk tindakan selanjutnya. Selain itu, beberapa upaya dikaitkan dengan komplikasi seperti ekstravasasi dan flebitis, ini juga termasuk terhadap penipisan jaringan intravena perifer dan keterlambatan pengobatan. Untuk menghindari dampak negatif tersebut, rekomendasi praktik yang baik saat ini menyoroti hal-hal tersebut perlu melakukan penilaian yang tepat terhadap jaringan intravena perifer pasien.

Tujuan dari penulisan manuskrip ini adalah untuk mengetahui faktor risiko yang muncul pada kegagalan melakukan kanulasi intravena perifer pada pasien dewasa. Skala DIVA Skor memungkinkan untuk menghitung risiko kegagalan selama kanulasi intravena pada upaya pertama dan mengkategorikan pasien dengan kemungkinan akses intravena yang sulit.

METODE PENELITIAN

Pencarian literatur dilakukan di database Pubmed dengan pencarian title/Abstract menggunakan keyword Adult AND (Difficult Intravenous Access OR DIVA Score) sebagai Problem utama dan untuk Intervensi, Comparison dan Outcome mengacu pada standar baku karena tujuan dalam pencarian literatur ini untuk mencari intervensi yang tepat untuk masalah, perbandingan dengan metode lain jika ada, serta outcome yakni keberhasilan dalam pemasangan akses infus. Dalam telusur pustaka ini kami mendapatkan 8 hasil dengan filtrasi kesesuaian mendapatkan 5 artikel yang dapat digunakan. Pencarian literatur lain dilakukan dalam database Proquest dengan pencarian title menggunakan keyword (Difficult Intravenous Access OR DIVA Score) AND Adult. Dalam telusur pustaka ini kami mendapatkan 6 hasil dengan filtrasi kesesuaian serta eliminasi duplikasi mendapatkan 2 artikel yang dapat digunakan. Pencarian literatur ketiga dilakukan dalam database Science Direct dengan pencarian title menggunakan keyword Difficult Intravenous Access. Dalam telusur pustaka ini kami mendapatkan 5 artikel yang dapat digunakan. Semua pencarian literatur menggunakan limitasi 5 tahun terakhir. Didapatkan total 12 artikel yang dapat dilakukan untuk review sistematis.

HASIL DAN PEMBAHASAN

Dalam review sistematis ini didapatkan bahwa masalah pemasangan infus merupakan hal yang terjadi di seluruh dunia, beberapa terjadi akibat faktor dari pasien maupun tenaga medis. Adapun faktor dari pasien membutuhkan penelitian lebih lanjut terkait mengapa dan bagaimana penanganan untuk pasien dengan vena yang sulit terlihat dan sulit teraba. Beberapa penelitian juga konsen terhadap terlambatnya penanganan, tingkat nyeri pasien dan juga kondisi yang semakin buruk akibat percobaan pemasangan akses vena yang gagal. Dari segi tenaga medis, beberapa kondisi meliputi kurangnya pengalaman yang sulit jika dinilai dalam skala dan juga beberapa teknik yang bisa menjadi pilihan dalam hal terapi. Tabel 1 menunjukan beragam penelitian di seluruh dunia dalam

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skala kecil maupun skala besar yang menunjukan akar masalah yang kurang lebih serupa serta penanganan yang serupa. Rangkuman terkait intervensi dan hasil dari beberapa penelitian dapat dilihat pada tabel berikut:

Tabel 1. Rangkuman temuan penelitian

No	Source	Study	Years	Methods	Data	Sample	Intervention	Results
1	Improving difficult peripheral intravenous access requires thought, training and technology (DART3): a stepped-wedge, cluster randomised controlled trial protocol	Jessica A Schults, Nicole Marsh, et al	2023	Cluster randomised controlled trial	From three hospitals that have > 10 PIVCs/week In: Emergency departments, inpatient wards or critical care units (CCU, ICU) Ex: Operating services, radiology, rehabilitation, or psychiatric units	240	Difficult Access Requires Thought, Training and Technology (DART3) study	The data evaluate at three- and six-months post intervention using The RE-AIM (Reach, Effectiveness, Adoption, Implementation, and Maintenance) framework Modified DIVA identification and escalation pathways significantly increase the incidence of first attempt PIVC insertion success below <14 weeks
2	The Adult Difficult Intravenous Access (DIVA) Cognitive Aid: An Evidence-Based Cognitive Aid Prototype for Difficult Peripheral Venous Access	Philip L. Stagg	2023	A Desription about cognitive aid for DIVA	Explanation about DIVA Cognitive Aid	-	The DIVA cognitive aid: (i) Direct Puncture (ii) Ultrasound (iii) Seldinger lifelines	Found that DIVA resulted in treatment delays of up to 120 mins in some cases Cognitive aids can reduce human error and have been shown to significantly increase adherence to crisis management algorithms and significantly reduce missed steps
3	The Modified A-DIVA Scale as a Predictive Tool for Prospective Identification of Adult Patients at Risk of a Difficult Intravenous Access: A Multicenter Validation Study	Fredericus H. J. van Loon, Loes W. E. van Hooff, et al	2019	Cross sectional study	From five hospitals in the Netherlands	3587	Based on a participant's individual score on the A-DIVA scale, they were classified into either a low, moderate, or high-risk group. A higher score on the A-DIVA scale indicates a higher risk of difficult intravenous access.	The five-variable additive A-DIVA scale is a reliable and generalizable predictive scale to identify patients at risk of difficult intravenous access
4	Effect of Two	Dr Theresa	2019	Prospective,	Tertiary care	119	Two tourniquet	Either Blood

	Tourniquet Techniques on Peripheral Intravenous Cannulation Success: A Randomized Controlled Trial	Tran, MD, Ms Sarah R. Lund, et al		single-blinded, randomized controlled trial	center in Minnesota		technique	pressure cuffs and elastic tourniquets didn't give the significant difference
5	Pain and Satisfaction Perceptions of Ultrasound-Guided Versus Conventional Peripheral Intravenous Catheterization: A Randomized Controlled Trial	Laia Salleras-Duran, Ph.D., R.N., Concepció Fuentes-Pumarola, Ph.D., R.N., et al	2023	Randomized controlled trial	From first level community hospital	120	US-guided compared to the conventional procedure: Insertion success was greater (91.75% versus 89.9%; p=0.04) Number of attempts was lower (1.29 (0.59) ver- sus 1.81 (1.28); p<0.001) Satisfaction was greater (7.59 (2.04) versus 6.69 (2.28); p=0.03) Required time in minutes was greater (7.89 (7.13) versus 5.1 (3.69); p=0.045)	US-guided peripheral IV catheterization in patients with DIVA was more successful, required fewer attempts, enabled use of longer and higher-calibre catheters, and led to greater patient satisfaction
6	Difficult Intravenous Access Requiring Ultrasound in the Emergency Department: Associations With Delays in Care and Areas for Quality Improvement	Derrick Huang, Lucas Winter, et al	2023	Cross-sectional, observational analysis	Ocala Regional Medical Center, in Ocala, Florida	1250	USG for Intra venous access	DIVA cases requiring USGIV access were positively associated with significantly longer times to access, contrast CT imaging, and disposition compared to patients without DIVA IVDU and ESRD had statistically significant associations with DIVA requiring USGIV access
7	Peripheral intravenous catheter insertion and use of ultrasound in patients with difficult intravenous access: Australian patient and practitioner perspectives to	Jessica A. Schults, Pauline CallejaI, et al	2022	Descriptive study	Explanation about perspective	78	USG for Intra venous access	US-guided insertion of PIVCs is recommended by international guidelines for DIVA patients Not applicable in Australia: limited resources and infrastructure to support

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	inform future implementation strategies							
8	Improving Adherence to Best Practices and Clinical Outcomes in Difficult Intravenous Access Patients	Zimmerman T, Mielke N, et al	2023	Observational cohort analysis	Beaumont Hospital: Royal Oak, Royal Oak, Michigan, US	3,867	Comprehensive vascular access program	The training program resulted in faster USIV insertion times, improved insertion practices, and a higher proportion of catheter dwell time to hospital length of stay
9	Difficult Intravenous Access in the Emergency Department: Incidence, Implications, and Improved Delays in Care With Nurse-Initiated Ultrasound-Guided Intravenous Access	Amick AE, Davis E, et al	2018	Single-center cohort study	Tertiary hospital ED in Chicago	148,559	USG for Intra venous access	Trained RNs using SBML to perform USGIV improves patient care
10	Difficult intravenous access in the emergency department: Performance and impact of ultrasound-guided IV insertion performed by nurses	Evan M. Davis, Sarah Feinsmith, et al	2020	Retrospective study	Tertiary hospital ED in Chicago	147,26	USG for Intra venous access	DIVA affects many ED patients and leads to delays in PIV access-related care. Nurse insertion of USGPIVs improves care in patients with DIVA
11	Racial and sex disparities in difficult intravenous access	M.R. Schwid, M.A. Loesche, et al	2022	Retrospective study	Urban ED	108,256	-	The prevalence of DIVA: highest in black patients (black 4.9%, white 3.1%, Asian 2.0%, Hispanic 1.7%, other or unidentified 2.1%) highest in women (3.6% versus 2.6%)
12	Use of point of care ultrasound (POCUS) by intensive care paramedics to achieve peripheral intravenous access in patients predicted to be	Samuel O. Burton, Jake K. Donovan, et al	2023	Prospective observational pilot study	Ambulance Service in Victoria	32	POCUS Device	Overall success rate was 50% of which 87% were successful on the first attempt

	difficult: An out-of-hospital pilot study

Pembahasan

Berdasarkan tabel tersebut menunjukkan bahwa rerata penyelesaian dari masalah terkait sulitnya pemasangan akses intravena tidaklah dengan mencoba sampai dapat melainkan di limitasi dengan 2x insersi, apabila masih gagal USG merupakan intervensi yang umum dilakukan. Dalam hal ini dapat disimpulkan jam terbang dari seorang tenaga kesehatan tidak dapat menjadi dasar utama dalam melakukan intervensi pemasangan akses vena. Pengetahuan dan keahlian dalam menggunakan alat USG sebagai alat bantu juga diperlukan. Jika masih gagal, pemasangan akses vena sentral menjadi pilihan dimana pasien tentunya tidak akan nyaman karena prosedur terlalu invasif.

KESIMPULAN

Penelitian ini menyimpulkan bahwa USG dapat menjadi pilihan alat penunjang yang dapat dipakai untuk meningkatkan angka keberhasilan pemasangan infus. Terkait model, tipe dan teknik dalam menggunakan USG dapat dipelajari lebih lanjut. Aplikasi ini tentu dapat diimplementasikan pada fasilitas kesehatan di kota besar. Kemahiran tenaga medis dalam hal ini harus ditingkatkan baik secara hirarki pengalaman dan juga keahlian USG.

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