PICC vs. midline vs. mini-midline nel paziente COVID

Dr. Antonio Gidaro

U.O.C. Medicina Generale / Vascular Access Team

H. Sacco Milano

Editorial

JVA | The Journal of Vascular Access

The Journal of Vascular Access
2020, Vol. 21(4) 408–410

DOI: 10.1177/1129729820923935
journals.sagepub.com/home/jva
SAGE

Vascular access in COVID-19 patients: Smart decisions for maximal safety

Giancarlo Scoppettuolo[1], Daniele Guerino Biasucci[2] and Mauro Pittiruti[3]

Abstract

The 2020 COVID pandemic has forced everyone to update the usual medical procedures and adapt them to a new situation characterized by a high risk of contamination of the health operator. The placement of a venous access device is no exception. In the experience of the vascular access team of our hospital, hit by the COVID epidemic in March 2020, the safety of both the patient and the staff can be ensured by an insertion bundle of few smart strategies, which include choice of long dwelling peripheral catheters (midline catheters) rather than short venous cannulas; use of power injectable peripherally inserted central catheters in the COVID patients in intensive care unit requiring a central line; use of wireless probes—easy to carry, easy to clean—for ultrasound guided venipuncture; avoidance of x-rays, using alternative methods for tip location such as intracavitary electrocardiography or trans-thoracic echocardiography; strict adoption of the barrier precautions recommended by the international guidelines.

Keywords

COVID, coronavirus, venous access device, central venous catheter, PICC, midline, tip location, ultrasound guidance

Date received: 25 March 2020; accepted: 14 April 2020


National Library of Medicine
National Center for Biotechnology Information
Log in
PubMed®
covid
Search
Advanced
Create alert
Create RSS
User Guide
Save
Email
Send to
Sort by:
Most recent
Display options
MY NCBI FILTERS
394,303 results
Page
1
of 39,431
RESULTS BY YEAR
1979
2024
1
Cite
Share
Forecasting local hospital bed demand for COVID-19 using on-request simulations.
Kociurzynski R, D'Ambrosio A, Papathanassopoulos A, Bürkin F, Hertweck S, Eichel VM, Heininger A, Liese J, Mutters NT, Peter S, Wismath N, Wolf S, Grundmann H, Donker T.
Sci Rep. 2023 Dec 3;13(1):21321. doi: 10.1038/s41598-023-48601-8.
PMID: 38044369
To address this, we developed an intuitive online tool for individual hospitals to forecast COVID-19 bed demand. The tool utilizes local data, including incidence, vaccination, and bed occupancy data, at

National Library of Medicine
National Center for Biotechnology Information

Log in

PubMed®

(picc) AND (covid)

Search

Advanced Create alert Create RSS User Guide

Save Email Send to Sort by: Most recent Display options

MY NCBI FILTERS

13 results

Page 1 of 2

RESULTS BY YEAR

1

Cite

Share

Feasibility of Ultrasound-Guided, Peripherally Inserted Central Catheter Placement at the Bedside in a Communicable-Disease Isolation Unit.

Yoon KW, Wi W, Choi MS, Gil E, Park CM, Yoo K.

J Pers Med. 2023 May 20;13(5):863. doi: 10.3390/jpm13050863.

PMID: 37241033 Free PMC article.

BACKGROUND: Previous studies have investigated the safety of peripherally inserted central catheters (PICCs) in the intensive care unit (ICU). However, it remains uncertain whether **PICC** placement can be successfully carried out in settings with limited resources and a chal ...

National Library of Medicine
National Center for Biotechnology Information

Log in

PubMed®

(Peripherally Inserted Central Catheter) AND (covid)

Search

Advanced Create alert Create RSS User Guide

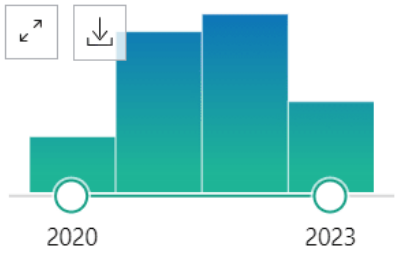
Save Email Send to Sort by: Most recent Display options

MY NCBI FILTERS

20 results

Page 1 of 2

RESULTS BY YEAR



TEXT AVAILABILITY

1 article found by citation matching

Placement of a Peripherally Inserted Central Catheter in a Prone Patient With COVID-19: Feasibility and Case Report.

Kelly L, et al. J Infus Nurs. 2021. PMID: 34197349 Free PMC article.

1 Cite

Feasibility of Ultrasound-Guided, **Peripherally Inserted Central Catheter** Placement at the Bedside in a Communicable-Disease Isolation Unit.

Yoon KW, Wi W, Choi MS, Gil E, Park CM, Yoo K.

National Library of Medicine
National Center for Biotechnology Information

Log in

PubMed®

(midline) AND (covid)

Search

Advanced Create alert Create RSS User Guide

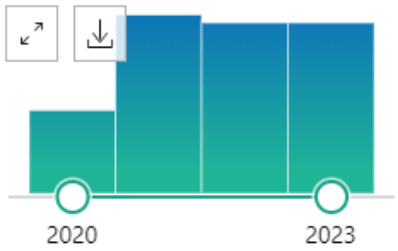
Save Email Send to Sort by: Most recent Display options

MY NCBI FILTERS

64 results

Page 1 of 7

RESULTS BY YEAR



1

Cite

Share

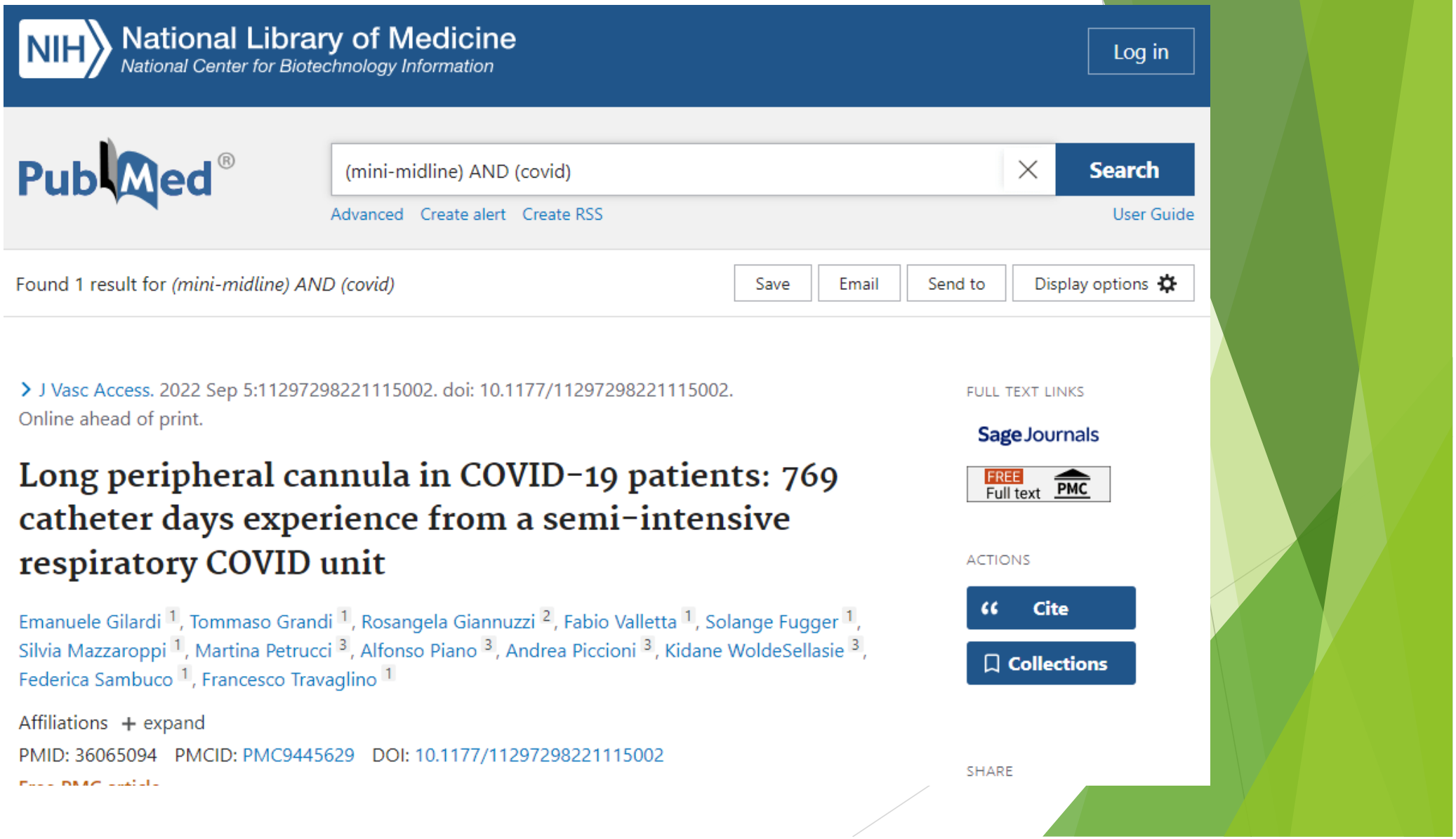
SARS-COV-2 protein NSP9 promotes cytokine production by targeting TBK1.

Zhang Y, Xin B, Liu Y, Jiang W, Han W, Deng J, Wang P, Hong X, Yan D.

Front Immunol. 2023 Oct 2;14:1211816. doi: 10.3389/fimmu.2023.1211816. eCollection 2023.

PMID: 37854611 Free PMC article.

However, the mechanism by which **SARS-COV-2** causes the cytokine storm is unknown. Here, we demonstrated that **SARS-COV-2** protein NSP9 promoted cytokine production by interacting with and activating TANK-binding kinase-1 (TBK1). ...These fin ...


National Library of Medicine
National Center for Biotechnology Information
Log in
PubMed®
(mini-midline) AND (covid)
Search
Advanced
Create alert
Create RSS
User Guide
Found 1 result for (mini-midline) AND (covid)
Save
Email
Send to
Display options
J Vasc Access. 2022 Sep 5:11297298221115002. doi: 10.1177/11297298221115002.
Online ahead of print.
Long peripheral cannula in COVID-19 patients: 769 catheter days experience from a semi-intensive respiratory COVID unit
Emanuele Gilardi [1], Tommaso Grandi [1], Rosangela Giannuzzi [2], Fabio Valletta [1], Solange Fugger [1], Silvia Mazzaroppi [1], Martina Petrucci [3], Alfonso Piano [3], Andrea Piccioni [3], Kidane WoldeSellasie [3], Federica Sambuco [1], Francesco Travaglino [1]
Affiliations + expand
PMID: 36065094 PMCID: PMC9445629 DOI: 10.1177/11297298221115002
FULL TEXT LINKS
Sage Journals
FREE Full text PMC
ACTIONS
Cite
Collections
SHARE

National Library of Medicine
National Center for Biotechnology Information

Log in

PubMed®

(long peripheral cannula) AND (covid)

Search

Advanced Create alert Create RSS User Guide

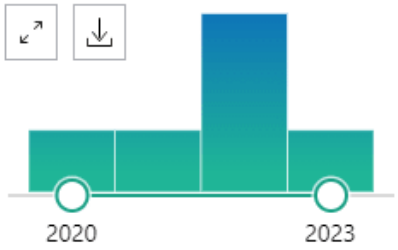
Save Email Send to Sort by: Most recent Display options

MY NCBI FILTERS

4 results

Page 1 of 1

RESULTS BY YEAR



TEXT AVAILABILITY

1

Cite

Share

Non-rebreather mask and low-flow nasal **cannula** vs high-flow nasal **cannula** in severe **COVID-19** pneumonia in the emergency department.

Mohd Kamil MK, Yuen Yoong KP, Noor Azhar AM, Bustam A, Abdullah AH, Md Yusuf MH, Zambri A, Ahmad Zahedi AZ, Shafie H.

Am J Emerg Med. 2023 Jan;63:86-93. doi: 10.1016/j.ajem.2022.10.029. Epub 2022 Oct 19.

PMID: 36327755 Free PMC article.

BACKGROUND: To assess the effectiveness of non-rebreather mask combined with low-flow nasal **cannula** (NRB + NC) compared to high-flow nasal **cannula** (HFNC) in improving oxygenation in patients with **COVID-19**-related hypoxemic respiratory failure (HRF). .. ...

Vascular access in critically ill patients with COVID-19: a scoping review protocol

Emma Morrissey[1,2] · Orlaith Hernon[2] · Rachel Egan[3] · Peter J. Carr[2]

[1]Anaesthetics and Critical Care Department, St. James's Hospital, Dublin, Ireland, [2]School of Nursing and Midwifery, University of Galway, Galway, Ireland, and [3]Surgical, Anaesthetics and Critical Care Department, St. James's Hospital, Dublin, Ireland

(*Continued*)

No	Search	Results retrieved
41	(('vascular access' OR 'venous access') NEAR/3 (covid OR safety OR efficacy OR manage* OR optimi?ation OR maintenance OR innovative OR novel OR preferred OR method* OR route* OR improve OR procedure* OR complication*)):ti,ab,kw	4956
42	(('vascular access device' OR 'venous access device' OR catheter*) NEAR/4 (select OR selection OR insert* OR maintenance OR management OR function* OR safety OR efficacy OR position* OR optimi?ation OR placement*)):ti,ab,kw	51,001
43	#39 OR #40 OR #41 OR #42	98,324
44	#19 AND #28 AND #38 AND #43	84

Original research article

JVA | The Journal of Vascular Access

Retrospective survey from vascular access team Lombardy net in COVID-19 era

The Journal of Vascular Access
1–6

DOI: 10.1177/1129729821997252
journals.sagepub.com/home/jva
SAGE

Gidaro Antonio[1*], Vailati Davide[2*], Gemma Marco[3*], Lugli Francesca[1], Casella Francesco[1], Cogliati Chiara[1], Canelli Antonio[2], Nadia Cremonesi[2], Monolo Davide[4], Cordio Giuseppe[4], Frosi Chiara[4], Destefanis Riccardo[5], Rossi Anna[5], Alemanno Maria Chiara[6], Valenza Franco[6], Luisoni Mara Dina[6], Elli Stefano[7], Caldarini Andrea[7], Lucchini Alberto[7], Paglia Stefano[8], Baroni Monica[8] and Giustivi Davide[8*]

COVID-19 significantly predicted occurrence of CRT (OR=2.00(1.85–5.03);
p<0.001), CRSB (OR=3.82(1.82–8.97); p<0.001), and Accidental Removal (OR=2.39(1.80–3.20); p<0.001)

Table 3. Description of VADs complication.

	Number of complication	Male/ Female %	Median age	Median day insertion/ diagnosis	Pulmonary embolism	CRBSI patogen	New VAD after accidental remove	Mortality after complication
CRT COVID+	32	50%/50%	69.7 ± 11.2	8.7 ± 5.7	1			31.3%
CRT COVID FREE	10	50%/50%	67.1 ± 12.7	15.6 ± 18.1	0			20,0%
	$p < 0.001$							
CRBSI COVID+	15	40%/60%	63.2 ± 19.7	17.2 ± 8.3		GRAM + 11/ GRAM - 3/ Fungal 1		20%
CRBSI COVID FREE	4	40%/60%	62 ± 15.6	39.7 ± 50.5		GRAM + 2/ GRAM - 1/ Fungal 1		0%
	$p < 0.001$							
Accidental Remove COVID+	85	55%/45%	77.5 ± 12.5	7 ± 6.3			35%	30%
Accidental Remove COVID FREE	38	37%/63%	70.9 ± 15.8	16.8 ± 17.9			44%	12%
	$p < 0.001$							

Original research article

JVA | The Journal of Vascular Access

The Journal of Vascular Access
1–8

DOI: 10.1177/11297298221085450
journals.sagepub.com/home/jva
SAGE

Midline peripheral catheters inserted in the superficial femoral vein at mid-thigh: Wise choice in COVID-19 acute hypoxemic respiratory failure patients with helmet continuous positive airway pressure

Antonio Gidaro[1], Federica Samartin[1], Emanuele Salvi[1], Francesco Casella[1], Chiara Cogliati[1], Davide Giustivi[2], Francesca Lugli[1], Chiara Trione[1], Chiara Melchionda[1], Arianna Bartoli[1], Antonella Foschi[3], Monica Schiavini[3], Marco Schiuma[3], Roberto Castelli[4] and Maria Calloni[1]

Abstract

Background: During coronavirus disease 2019 (COVID-19) pandemic, Helmet Continuous Positive Airway Pressure (h-CPAP) has been widely used to treat Acute Hypoxemic Respiratory Failure (AHRF). In COVID-19 patients undergoing h-CPAP a simple short peripheral catheter could be insufficient. According to the European Recommendations for Proper Indication and Use of Peripheral venous access consensus, a stable peripheral Vascular Access Device is indicated for intravenous treatment compatible with the peripheral route scheduled for more than 1 week.

Objective: The aim of this prospective study was to evaluate the performance and the potential complications of superficial femoral midline catheters (SFMC) inserted in the Superficial Femoral Vein by direct Seldinger technique with peripheral tip (Arrow®, Teleflex; 20 cm length four FR single lumen and seven FR dual lumen) in AHRF COVID-19 patient. Complications were divided in early (accidental puncture of superficial femoral artery (APSFA); accidental saphenous nerve puncture (ASNP); bleeding) and late (Catheter Related Thrombosis (CRT); Catheter-Related Bloodstream Infections (CRBSI); Accidental Removal (AR); persistent withdrawal occlusion (PWO)).

Methods: From 1st October 2020 to 30th June 2021 we conducted a prospective observational study in COVID-19 sub-intensive wards at Luigi Sacco Hospital (Milan).

Results: Hundred seventy five SFMC (mean dwell time 11.1 ± 9.8 days) were implanted in COVID-19 patients, 107 (61.1%) during h-CPAP treatment (10.5 ± 8.9 days), the remaining 68 (38.9%) in patients with severe disease. We recorded two minor immediate/early complications (APSFA without sequelae) and no major complications.

The long-term follow-up registered four CRBSI (2.3%–2.5/1000 catheters days (CD)), five CRT (2.9%: 2.6/1000 CD), 22 AR (12.6%; 11.4/1000 CD), 38 PWO (36.5%), 34 of which occurred due to fibroblastic sleeve (32.7%).

Conclusions: SFMC proved to be safe, easy and time-saving. It could be implemented, after a careful benefits and risks evaluation, in particular settings such as h-CPAP, delirium, bleeding risk factors and palliative care patients.

Original research article

JVA | The Journal of Vascular Access

The Journal of Vascular Access
1–6

DOI: 10.1177/11297298221115002
journals.sagepub.com/home/jva
SAGE

Long peripheral cannula in COVID-19 patients: 769 catheter days experience from a semi-intensive respiratory COVID unit

Emanuele Gilardi[1], Tommaso Grandi[1], Rosangela Giannuzzi[3], Fabio Valletta[1], Solange Fugger[1], Silvia Mazzaroppi[1], Martina Petrucci[2], Alfonso Piano[2], Andrea Piccioni[2], Kidane WoldeSellasie[2], Federica Sambuco[1] and Francesco Travaglino[1]

Abstract

Background: In the daily management of peripheral venous access, the health emergency linked to the COVID-19 pandemic led to re-examining the criteria for choosing, positioning and maintaining the different types of peripheral venous access.

Objectives: This study aimed to observe the dwell time of long peripheral cannula (LPC, also known as *mini-midline*) in patients affected by COVID 19 related pneumonia. The secondary objective is to study any complications due to mini-midline insertion.

Materials and methods: We conducted a prospective observational study on COVID19 patients who arrived at our Semi-Intensive Respiratory Unit from territorial ED between January and April 2021, to whom were positioned an LPC at the time of admission following the SIPUA protocol (Safe Insertion of Peripheral Ultrasound-guided Access). We used Vygon™ Leader-Cath© 18G in polyethylene and 8 cm long catheter.

Results: We enrolled 53 consecutive patients, reaching 769 catheter days. The procedure was performed without immediate complications in 37 patients out of 53 (69.8%). In 14 patients (26.4%), we observed a local hematoma (no one led to a failure or early removal of the device) and in two patients (3.7%) was not possible to draw blood. The average catheter dwell time was 14.5 days, from 3 to 41 days. In 42 patients (79.2%), the device was removed at the end of use. In 11 patients out of 53 (20.8%), the device was removed early due to complications: seven accidental removals, one obstruction, two vein thrombosis, and one superficial thrombophlebitis.

Conclusions: The ultrasound-guided implantation of an 18G LPC in COVID19 patients, regardless of the state of their venous heritage, would seem to be an excellent strategy for these patients, reducing the number of venipunctures and CVC implantation, as well as allowing multiple and high pressure (contrast) infusions.

Contents lists available at ScienceDirect

American Journal of Infection Control

journal homepage: www.ajicjournal.org

Major Article

Complications associated with the use of peripherally inserted central catheters and midline catheters in COVID-19 patients: An observational prospective study

Federico Frondizi MD [a,*], Laura Dolcetti [b], Mauro Pittiruti MD [c], Maria Calabrese MD [d], Massimo Fantoni MD [a,b], Daniele Guerino Biasucci MD [e], Giancarlo Scoppettuolo MD [b]

[a] Dipartimento di Sicurezza e Bioetica, Università Cattolica del Sacro Cuore, Rome, Italy
[b] Dipartimento di Scienze di Laboratorio e Infettivologiche, Fondazione Policlinico Universitario Agostino Gemelli IRCCS, Rome, Italy
[c] Dipartimento di Scienze della Salute della Donna e del Bambino e di Sanità Pubblica, Fondazione Policlinico Universitario Agostino Gemelli IRCCS, Rome, Italy
[d] Dipartimento di Scienze dell'Emergenza, Anestesiologiche e della Rianimazione, Fondazione Policlinico Universitario Agostino Gemelli IRCCS, Rome, Italy
[e] Dipartimento di Scienze Cliniche e Medicina Translazionale, Università degli Studi di Roma Tor Vergata, Rome, Italy

Key Words:
COVID-19
Catheter-related bloodstream infections
Venous access devices

Background: Among the many interesting aspects of clinical care during the SARS-CoV-2 pandemic, vascular access still deserves some attention. Peripherally inserted central catheters (PICCs) and midline catheters (MCs) are venous access devices inserted by ultrasound-guided puncture of veins of the arm, which have been associated with the possibility of minimizing infectious complications in different populations of patients. We have investigated their performance in SARS-CoV-2 patients.

Methods: As the incidence of catheter-related bloodstream infections (CRBSI) in patients hospitalized for COVID-19 is still unclear, we have designed a single-center, prospective observational study enrolling all patients with established diagnosis of SARS-CoV-2 infection who were admitted to our hospital in the period between October 2020 and April 2021 and who required either a PICC or a MC.

Results: We recruited 227 patients. The cumulative incidence of CRBSI was 4.35% (10 cases), that is, 3.5 episodes/1,000 catheter days. Four CRBSI occurred in patients with PICCs (4.5/1,000 catheter days) and 6 in those with MCs (3.2/1,000 catheter days).

Conclusions: Our data suggest that COVID-19 patients may have a more pronounced tendency for the development of catheter-related infections compared to other populations of patients.

Original research article

JVA | The Journal of Vascular Access

Safety of mid-thigh exit site venous catheters in multidrug resistant colonized patients

Arianna Bartoli[1], Mattia Donadoni[1], Massimiliano Quici[1], Giulia Rizzi[1], Leyla La Cava[1], Antonella Foschi[2], Maria Calloni[1], Francesco Casella[1], Elena Martini[1], Alba Taino[1], Chiara Cogliati[1] and Antonio Gidaro[1]

The Journal of Vascular Access
1–7

DOI: 10.1177/11297298231188150
journals.sagepub.com/home/jva
Sage

Material and methods

In this retrospective observational study, we analyzed data on catheters with a mid-thigh exit site inserted from 1st May 2021 to 30th November 2022 (18 months) at L. Sacco Hospital, Milan, in non-intensive clinical wards. The inclusion criteria were:

Table 1. Study population and complications of the mid-thighs insertion.

	Whole population	Not performed rectal swab patients	Negative rectal swab	Positive rectal swab
Number of catheters	602	298	176	128
Age	83 (74–88)	83 (73–88)	83 (74–88)	82.5 (75–88)
Male sex	283 (47%)	147 (49.3%)	78 (44.3%)	58 (43.3%)
COVID-19 patients	208 (34.6%)	112 (37.6%)	70 (39.8%)	26 (20.3%)

Table 3. Characteristics of the patients with CLABSI or CRBSI.

		Sex	Age	Covid	Catheters	No. of lumens	Dwell times (days)	Rectal swab	Catheter tips culture	Blood culture
CLABSI	1	Female	90	Covid19	MIDLINE	1	19	Not performed	Negative	Not performed for PWO
	2	Female	60	Covid19	MIDLINE	1	6	K. Pneumoniae KPC+	Not performed	Negative for DTI
	3	Female	91	Negative	MIDLINE	2	17	Negative	Negative	Not performed for PWO
	4	Female	81	Negative	MIDLINE	1	25	VRE + Acinetobacter	Not performed	Negative for DTI
	5	Female	84	Negative	PICC	1	22	Negative	Not performed	Negative for DTI
	6	Male	67	Negative	PICC	1	10	Negative	Negative	Not performed for PWO
CRBSI	7	Male	79	Negative	MIDLINE	2	21	VRE	VRE	VRE
	8	Male	63	Negative	PICC	1	28	Not performed	E. faecium	E. faecium
	9	Male	50	Covid19	PICC	1	8	Negative	Not performed	Candida

K. pneumoniae: Klebsiella pneumoniae; KPC: Klebsiella pneumoniae carbapenemase producing; VRE: Vancomycin resistant Enterococci; E. faecium: Enterococcus faecium ; PWO: persistent whitdrawal occlusion; DTP: Differential Time to Positivity.

join
meeting plan
anonymous connect default future best strength completion achievement
member united complete
meetings altogether Unification display strategy consent team partners
consolidation unison uniting
talk partnership
support upward community common
dialog membership communicate positive
business cover contract growth
opinion together goal unity negotiate general agreement agreeing
accepting
harmony coalition creative completing people
integrate consensus teamwork finish
confidence integration discussion yes composition acceptance
global common goal
legal everyone everybody decision making process agreement
participatory final
solution sign
collaboration unanimous user aspirations union
general social acceptable sociology friendship
effective corporate
colleagues accept last
unify solidarity
communication unite agree speech best interest decision
amalgamation
coordination power cooperation strategic agreed
company group international determination success joined
association coalition
handshake connection deal finishing combine
interest alliance joining talking every succeed
block

Novembre 2020

- L'impatto della epidemia sui servizi sanitari assistenziali rimane alto. 18 Regioni/PPAA, al giorno 01/12/2020, avevano superato almeno una soglia critica in area medica o TI. Il tasso di occupazione dei posti letto in Terapia Intensiva supera ancora la soglia critica di occupazione a livello nazionale. Complessivamente, il numero di persone ricoverate in **terapia intensiva è in diminuzione** da 3.816 (24/11/2020) a 3.663 (01/12/2020); mentre il numero di persone ricoverate in aree mediche è passato da 34.577 (24/11) a 32.811 (01/12/2020).

Indicatori decisionali come da Decreto Legge del 18 maggio 2021 n.65 articolo 13

Aggiornamento del 02/12/2021

Regione	Incidenza 7gg/100 000 pop - Periodo di riferimento 12-18 novembre	Incidenza 7gg/100 000 pop- Periodo di riferimento 19-25 novembre	Incidenza 7gg/100 000 pop- Periodo di riferimento 26 novembre-2 dicembre	% OCCUPAZIONE PL AREA MEDICA DA PAZIENTI COVID al 02/12/2021	% OCCUPAZIONE PL TERAPIA INTENSIVA DA PAZIENTI COVID (DL 23 Luglio 2021 n.105) al 02/12/2021
Abruzzo	96	103,4	122,2	8,3%	4,4%
Basilicata	36,7	34,9	44,7	3,8%	0,0%
Calabria	64,4	69,2	99,7	14,1%	8,9%
Campania	100	107,1	127,9	8,8%	3,0%
Emilia Romagna	111,7	163,1	198,7	8,1%	8,4%
Friuli Venezia Giulia	289,3	346,4	336,3	23,0%	14,9%
Lazio	113	146,1	172,1	10,8%	7,8%
Liguria	99,6	156,3	192,5	9,3%	9,3%
Lombardia	88,7	119,7	148,7	13,4%	7,3%
Marche	112,5	150,0	192,6	9,5%	12,0%
Molise	54	61,0	46,9	6,3%	2,6%
PA di Bolzano	406	458,9	645,7	19,8%	17,5%
PA di Trento	102,8	158,2	197,7	8,9%	7,8%
Piemonte	74,7	93,9	136,2	6,9%	5,7%
Puglia	40	38,2	46,7	4,8%	4,0%
Sardegna	40,8	52,6	51,2	4,5%	6,9%
Sicilia	67,8	87,2	97,6	8,6%	5,2%
Toscana	71	85,6	97,7	4,9%	8,6%
Umbria	61,6	68,6	66,8	6,5%	7,9%
Valle d'Aosta	174,3	265,5	309,1	28,3%	3,0%
Veneto	166,1	226,1	317,1	8,9%	10,5%
ITALIA	***98***	***125***	**155**	**9,1%**	**7,3%**

Fonte dati: Ministero della Salute / Protezione Civile

* In riferimento alle disposizioni di cui all'art. 2, comma 2 del D.L. 23 luglio 2021, n. 105 in merito agli indicatori individuati per la valutazione della necessità di applicazione di misure di contenimento e controllo dell'epidemia da SARS-CoV-2, si comunica che nel corso della riunione del 24 settembre 2021, la Cabina di Regia per il monitoraggio del rischio sanitario, di cui all'allegato 10 del DPCM 26/04/2020 e al D.M. Salute 30 aprile 2020, in considerazione della verificata stabilità dei flussi relativi all'occupazione dei posti letto di Area Medica e di Terapia Intensiva e dell'opportunità di riferirsi al dato quanto più possibile aggiornato, ha ritenuto opportuno prendere a riferimento per la valutazione settimanale i dati riferiti alla giornata del giovedì antecedente la riunione di monitoraggio, che si svolge ogni venerdì. Qualora non disponibili, si utilizzeranno i dati più recenti.

Indicatori decisionali come da Decreto Legge del 18 maggio 2021 n.65 articolo 13

Aggiornamento del 24/11/2022

Regione	Incidenza 7gg/100 000 pop Periodo di riferimento 4 novembre-10 novembre 2022	Incidenza 7gg/100 000 pop Periodo di riferimento 11 novembre-17 novembre 2022	Incidenza 7gg/100 000 pop Periodo di riferimento 18 novembre-24 novembre 2022	% OCCUPAZIONE PL AREA MEDICA DA PAZIENTI COVID al 24/11/2022	% OCCUPAZIONE PL TERAPIA INTENSIVA DA PAZIENTI COVID (DL 23 Luglio 2021 n.105) al 24/11/2022
Abruzzo	377,2	436,1	461,2	13,2%	3,3%
Basilicata	161,5	144,6	149,1	8,3%	0,0%
Calabria	200,0	212,8	198,4	13,1%	4,2%
Campania	212,1	227,8	257,0	7,4%	1,7%
Emilia Romagna	352,6	409,0	521,5	15,3%	4,3%
Friuli Venezia Giulia	382,1	388,0	453,4	14,9%	3,4%
Lazio	328,3	370,8	378,9	11,7%	2,4%
Liguria	290,0	366,0	457,5	20,6%	4,0%
Lombardia	337,3	421,9	450,3	12,2%	1,0%
Marche	288,1	354,9	450,5	15,5%	3,0%
Molise	169,9	209,4	271,7	6,8%	2,6%
PA di Bolzano	245,6	229,4	236,7	10,0%	0,0%
PA di Trento	258,4	300,7	295,9	7,5%	1,1%
Piemonte	299,0	352,9	387,3	9,0%	2,9%
Puglia	193,9	212,9	235,1	7,5%	2,1%
Sardegna	265,7	256,5	222,1	6,0%	1,5%
Sicilia	222,1	214,1	223,6	11,0%	3,3%
Toscana	327,7	345,9	401,0	9,6%	2,8%
Umbria	414,7	410,6	386,2	31,3%	2,4%
Valle d'Aosta	228,6	218,9	304,9	19,4%	0,0%
Veneto	503,7	636,3	694,9	13,9%	3,3%
ITALIA	***307***	***353***	***388***	12,0%	2,5%

Fonte dati: Ministero della Salute / Protezione Civile

In riferimento alle disposizioni di cui all'art. 2, comma 2 del D.L. 23 luglio 2021, n. 105 in merito agli indicatori individuati per la valutazione della necessità di applicazione di misure di contenimento e controllo dell'epidemia da SARS-CoV-2, si comunica che nel corso della riunione del 24 settembre 2021, la Cabina di Regia per il monitoraggio del rischio sanitario, di cui all'allegato 10 del DPCM 26/04/2020 e al D.M. Salute 30 aprile 2020, in considerazione della verificata stabilità dei flussi relativi all'occupazione dei posti letto di Area Medica e di Terapia Intensiva e dell'opportunità di riferirsi al dato quanto più possibile aggiornato, ha ritenuto opportuno prendere a riferimento per la valutazione settimanale i dati riferiti alla giornata del giovedì antecedente la riunione di monitoraggio, che si svolge ogni venerdì. Qualora non disponibili, si utilizzeranno i dati più recenti.

Maggio 2023

Ministero della Salute

Covid-19

Seguici su:

Cerca

Home / Monitoraggi Covid-19 / Monitoraggio Covid-19 numero 183

Monitoraggio Covid-19 numero 183

A partire dal 5 maggio 2023 è entrato in vigore il nuovo sistema di monitoraggio connesso alla fase 3 dell'epidemia da Sars-CoV-2 istituito con Decreto 6 marzo 2023. Il nuovo monitoraggio prevede il passaggio da un sistema di valutazione del rischio ad un sistema flessibile ed adattabile rispetto alla circolazione virale, garantendo comunque l'identificazione tempestiva dei cambiamenti nelle caratteristiche della diffusione dei casi di malattia e nell'impatto sui servizi assistenziali, fornendo un'adeguata e sollecita informazione alle autorità competenti.

Report

Data dal:

Data al:

Settimana dal 9 novembre 2023 al 15 novembre 2023

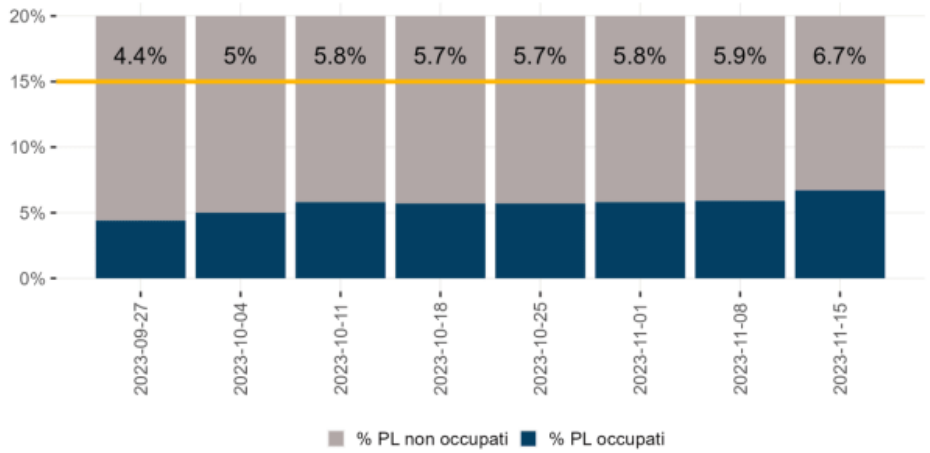
Report Nazionali

Regione/PA	Posti letto occupati area medica 15/11/2023 (A)	Posti letto totali area medica 15/11/2023 (B)	Occupazione (%) area medica 15/11/2023 (C=A/B*100)	Occupazione (%) area medica 08/11/2023
Abruzzo	102	1 382	7.4	5.4
Basilicata	18	333	5.4	4.2
Calabria	69	902	7.6	6.2
Campania	81	3 716	2.2	2.0
ER	825	9 001	9.2	8.6
FVG	139	1 277	10.9	10.9
Lazio	303	6 421	4.7	4.4
Liguria	165	1 251	13.2	11.8
Lombardia	431	10 457	4.1	3.6
Marche	137	973	14.1	8.2
Molise	13	176	7.4	1.7
Piemonte	584	6 794	8.6	7.0
PA Bolzano	73	500	14.6	12.0
PA Trento	58	517	11.2	8.3
Puglia	78	2 266	3.4	4.2
Sardegna	156	1 602	9.7	9.7
Sicilia	119	2 966	4.0	4.2
Toscana	258	5 033	5.1	4.7
Umbria	88	662	13.3	15.3
Valle d'Aosta	19	67	28.4	22.4
Veneto	451	6 000	7.5	5.5
ITALIA	**4 167**	**62 296**	**6.7**	**5.9**

Tutti i dati riportati in tabella si riferiscono al mercoledì di ogni settimana. Posti letto totali in Area Medica = posti letto Area Medica COVID attivi pre-emergenza (HSP 14.02.2020) + posti letto Area Medica COVID attivati (aggiuntivi rispetto ai posti letto pre-emergenza) aggiornati al giorno indice.

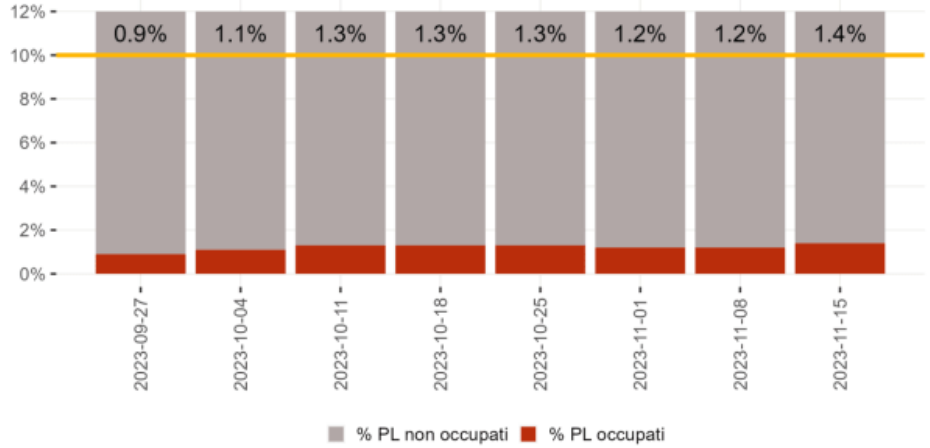
Regione/PA	Posti letto occupati terapia intensiva 15/11/2023 (A)	Posti letto totali terapia intensiva 15/11/2023 (B)	Occupazione (%) terapia intensiva 15/11/2023 (C=A/B*100)	Occupazione (%) terapia intensiva 08/11/2023
Abruzzo	4	181	2.2	2.2
Basilicata	2	79	2.5	0.0
Calabria	3	157	1.9	0.6
Campania	2	486	0.4	0.2
ER	19	889	2.1	2.1
FVG	4	175	2.3	1.7
Lazio	13	943	1.4	1.6
Liguria	8	186	4.3	4.3
Lombardia	11	1 810	0.6	0.3
Marche	1	206	0.5	0.5
Molise	0	39	0.0	0.0
Piemonte	17	628	2.7	1.4
PA Bolzano	2	100	2.0	2.0
PA Trento	1	90	1.1	1.1
Puglia	2	348	0.6	0.3
Sardegna	0	204	0.0	0.0
Sicilia	4	688	0.6	0.7
Toscana	12	570	2.1	1.6
Umbria	4	80	5.0	3.8
Valle d'Aosta	0	13	0.0	0.0
Veneto	13	1 000	1.3	1.4
ITALIA	**122**	**8 872**	**1.4**	**1.2**

Tutti i dati riportati in tabella si riferiscono al mercoledì di ogni settimana. Posti letto totali in Area Medica = posti letto Area Medica COVID attivi pre-emergenza (HSP 14.02.2020) + posti letto Area Medica COVID attivati (aggiuntivi rispetto ai posti letto pre-emergenza) aggiornati al giorno indice.



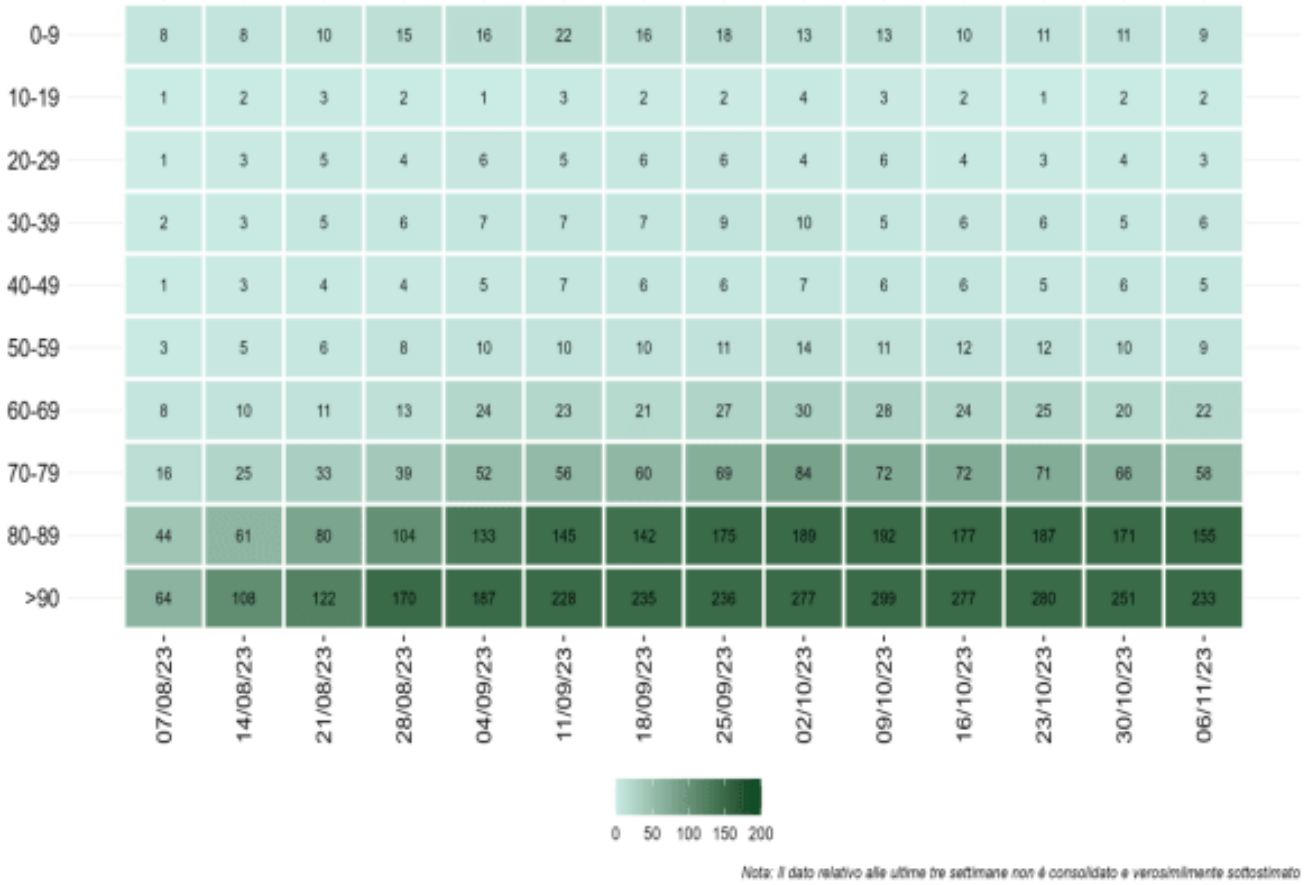
Denominatore: Posti letto totali

Figura 1 - Tasso di occupazione dei posti letto in Area Medica da pazienti con COVID-19 per giorno del monitoraggio settimanale



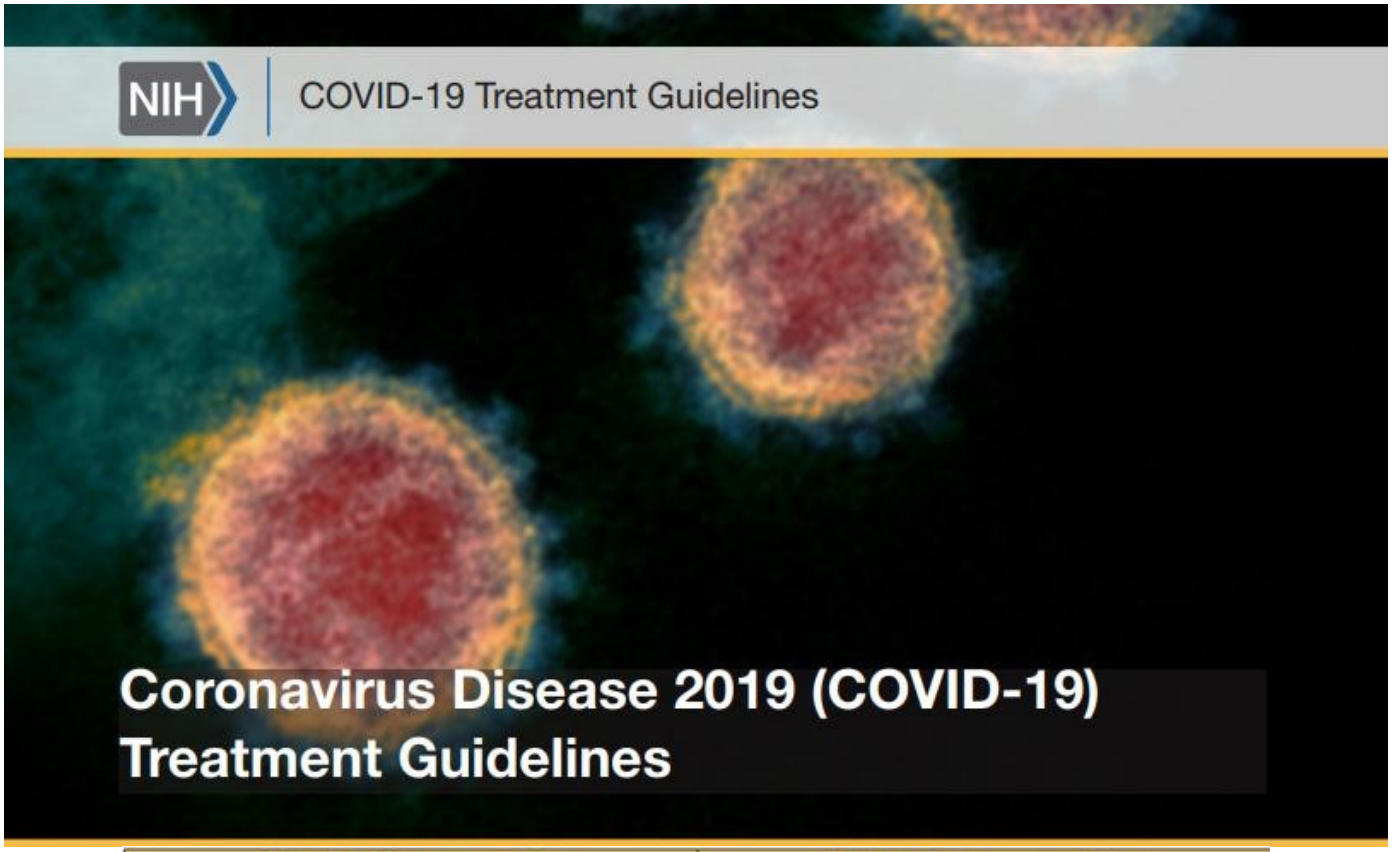
Denominatore: Posti letto totali

Figura 2 - Tasso di occupazione dei posti letto in Terapia Intensiva da pazienti con COVID-19 per giorno del monitoraggio settimanale



Nota: Il dato relativo alle ultime tre settimane non è consolidato e verosimilmente sottostimato

Figura 3 - Tasso di ospedalizzazione settimanale (per 1.000.000 ab.) per fascia d'età dal 7 agosto 2023



Strength of Recommendation	Evidence for Recommendation
A: Strong recommendation for the statement	**I:** *High quality of evidence:* 1 or more randomized trials without major limitations,[a] well-powered subgroup analyses of such trials, or meta-analyses without major limitations
B: Moderate recommendation for the statement	**IIa:** *Moderate quality of evidence:* Randomized trials and subgroup analyses of randomized trials that do not meet the criteria for a **I** rating
C: Weak recommendation for the statement	**IIb:** *Moderate quality of evidence:* Observational studies without major limitations[b]
	III: Expert opinion

Table 2b. Therapeutic Management of Hospitalized Adults With COVID-19

Disease Severity	Recommendations for Antiviral or Immunomodulator Therapy		Recommendations for Anticoagulant Therapy
	Clinical Scenario	Recommendation	
Hospitalized for Reasons Other Than COVID-19	Patients with mild to moderate COVID-19 who are at high risk of progressing to severe COVID-19[a,b]	See Therapeutic Management of Nonhospitalized Adults With COVID-19.	For patients without an indication for therapeutic anticoagulation: • **Prophylactic dose of heparin**, unless contraindicated **(AI)**; **(BIII)** for pregnant patients
Hospitalized but Does Not Require Supplemental Oxygen	All patients	The Panel **recommends against** the use of **dexamethasone (AIIa)** or other systemic corticosteroids **(AIII)** for the treatment of COVID-19.[c]	
	Patients who are at high risk of progressing to severe COVID-19[a,b]	**Remdesivir**[d] **(BIIb)** for patients who are immunocompromised; **(BIII)** for other high-risk patients	
Hospitalized and Requires Conventional Oxygen[e]	Patients who require minimal conventional oxygen	**Remdesivir**[d,f] **(BIIa)**	For nonpregnant patients with D-dimer levels above the ULN who do not have an increased bleeding risk: • **Therapeutic dose of heparin**[h] **(CIIa)** For other patients: • **Prophylactic dose of heparin**, unless contraindicated **(AI)**; **(BIII)** for pregnant patients
	Most patients	Use **dexamethasone plus remdesivir**[f] **(BIIa)**. If remdesivir cannot be obtained, use **dexamethasone (BI)**.	
	Patients who are receiving dexamethasone and who have rapidly increasing oxygen needs and systemic inflammation	Add 1 of the following immunomodulators:[g] *Preferred* • **PO baricitinib (BIIa)** • **IV tocilizumab (BIIa)** *Alternatives* • **IV abatacept (CIIa)** • **IV infliximab (CIIa)**	
Hospitalized and Requires HFNC Oxygen or NIV	All patients	**Dexamethasone** should be administered to all patients **(AI)**. If not already initiated, promptly add 1 of the following immunomodulators: *Preferred* • **PO baricitinib**[g,i] **(AI)** *Preferred Alternative* • **IV tocilizumab**[g,i] **(BIIa)** *Additional Alternatives (Listed in Alphabetical Order)* • **IV abatacept**[g,i] **(CIIa)** • **IV infliximab**[g,i] **(CIIa)** Add remdesivir to 1 of the options above in certain patients (for examples, see footnote).[j]	For patients without an indication for therapeutic anticoagulation: • **Prophylactic dose of heparin**, unless contraindicated **(AI)**; **(BIII)** for pregnant patients For patients who are started on a therapeutic dose of heparin in a non-ICU setting and then transferred to the ICU, the Panel recommends switching to a **prophylactic dose of heparin**, unless there is another indication for therapeutic anticoagulation **(BIII)**.
Hospitalized and Requires MV or ECMO	All patients	**Dexamethasone** should be administered to all patients **(AI)**. If the patient has not already received a second immunomodulator, promptly add 1 of the following (listed in alphabetical order): • **PO baricitinib**[j,k] **(BIIa)** • **IV tocilizumab**[j,k] **(BIIa)**	

antibiotics

MDPI

Systematic Review

Physicochemical Characteristics of Antimicrobials and Practical Recommendations for Intravenous Administration: A Systematic Review

Fabio Borgonovo [1,†], Massimiliano Quici [2,†], Antonio Gidaro [2,*,†], Davide Giustivi [3,†], Dario Cattaneo [4], Cristina Gervasoni [1], Maria Calloni [2], Elena Martini [2], Leyla La Cava [2], Spinello Antinori [1], Chiara Cogliati [2], Andrea Gori [1] and Antonella Foschi [1,†]

1 Department of Infectious Diseases, Luigi Sacco Hospital, ASST Fatebenefratelli-Sacco, University of Milan, 20157 Milan, Italy
2 Internal Medicine Unit, Luigi Sacco Hospital, ASST Fatebenefratelli-Sacco, Department of Biomedical and Clinical Sciences, University of Milan, 20157 Milan, Italy
3 Emergency Department and Vascular Access Team ASST Lodi, 26900 Lodi, Italy
4 Unit of Clinical Pharmacology, Luigi Sacco Hospital, ASST Fatebenefratelli-Sacco, University of Milan, 20157 Milan, Italy
* Correspondence: gidaro.antonio@asst-fbf-sacco.it
† These authors contributed equally to this work.

Table 2. List of antivirals identified through our systematic review, with their physicochemical characteristics and practical recommendations for intravenous administration. (Phlebitis: Yes = incidence ≥ 5%; No = incidence < 5%; NA: not available; P: preferred; 0.9% NaCl: sodium chloride 0.9%; D5W: dextrose 5% in water). Red flag and vesicant properties: Red: central line preferred.

Antibiotics							
Name	**Red Flag and Vesicant Properties**	**pH**	**mOsm/L**	**Phlebitis (Incidence ≥ 5%)**	**Diluent**	**Dosage**	**Infusion Rate**
Acyclovir [164–176]	Vesicant drug	10.5–11.6	285–323	Yes	0.9% NaCl/D5W	5–12.5 mg/kg q 8 h	At least 60 min
Cidofovir [177,178]		7.4–8.5	290	No	0.9% NaCl	5 mg/kg once weekly × 2 weeks, then once every other week	Over 60 min
Foscarnet (induction) [179–181]		7.4	271–315	Yes	0.9% NaCl/D5W	90 mg/kg q 12 h	Over 90–120 min
Foscarnet (mainteinance) [179–181]		7.4	271–315	Yes	0.9% NaCl/D5W	90–120 mg/kg q 24 h	Over 120 min
Ganciclovir [182,183]		11	290–320	Yes	0.9% NaCl	5 mg/kg q 12 h	At least 60 min
Oseltamivir [184,185]		4	NA	Yes	0.9% NaCl	100 mg q 12 h	At least 120 min
Remdesivir [186–198]	Vesicant drug	3	NA	NA	0.9% NaCl	200–100 mg/day	At least 30–120 min
Zanamivir [185,199]		4.5–6.5	NA	No	0.9% NaCl	600 mg q 12 h	Over 30 min

Patients Who Are Hospitalized for COVID-19 and Who Do Not Require Supplemental Oxygen

Recommendations

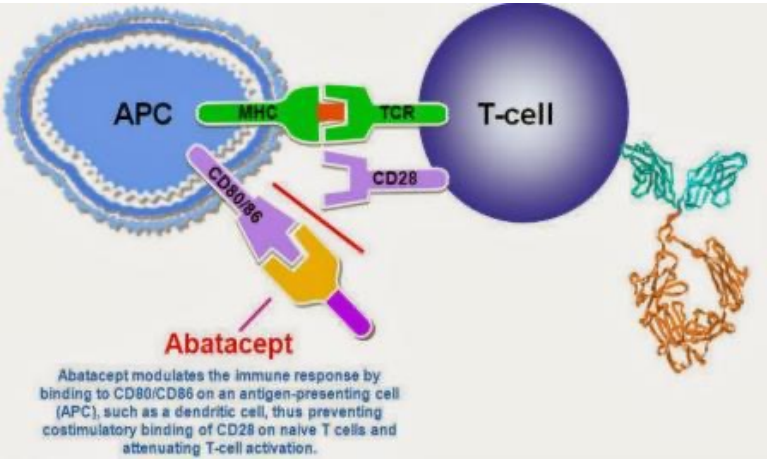
- The Panel recommends using **remdesivir** for the treatment of COVID-19 in patients who do not require supplemental oxygen and who are immunocompromised **(BIIb)** and for other patients who are at high risk of progressing to severe disease **(BIII)**.
- Remdesivir should be administered for 5 days or until hospital discharge, whichever comes first.

The rationale for using remdesivir in high-risk patients is based on several lines of evidence. In a trial conducted predominantly among hospitalized patients with COVID-19 who were not receiving supplemental oxygen at enrollment, a 5-day course of remdesivir was associated with greater clinical improvement when compared with standard of care.[1] Evidence from the PINETREE trial also suggests that early therapy reduces the risk of progression, although that study was performed in high-risk, unvaccinated, nonhospitalized patients with ≤7 days of symptoms who received a 3-day course of remdesivir.

Farmaci endovena

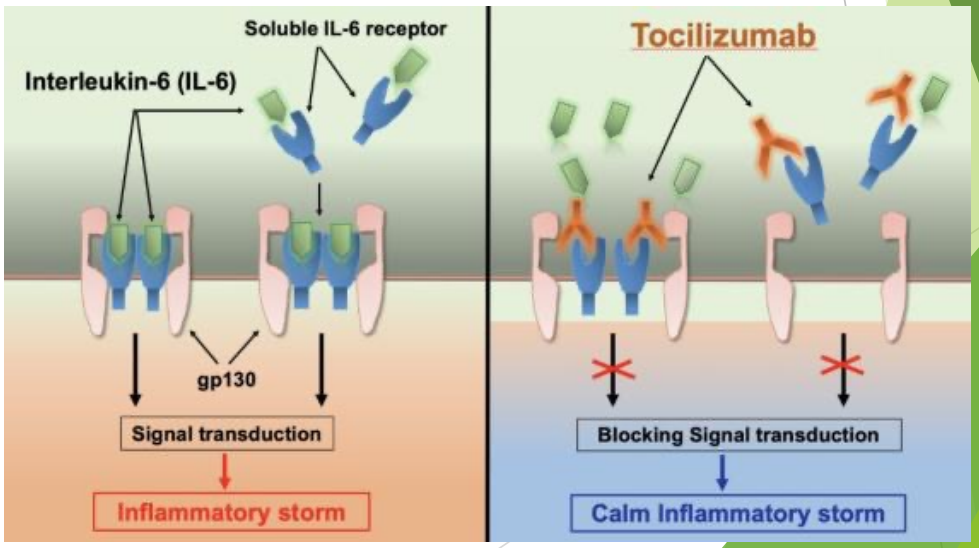
Proteina di fusione

- Abatarcept compatibile con via periferica



Anticorpi Monoclonali

- Tocilizumab e Infliximab compatibile con via periferica



Care of Critically Ill Adults With COVID-19

Last Updated: April 20, 2023

Summary Recommendations

Hemodynamics

- For adults with COVID-19 and shock, the COVID-19 Treatment Guidelines Panel (the Panel) recommends using dynamic parameters, skin temperature, capillary refilling time, and/or lactate levels over static parameters to assess fluid responsiveness **(BIIa)**.
- For the acute resuscitation of adults with COVID-19 and shock, the Panel recommends using buffered/balanced crystalloids over unbalanced crystalloids **(BIIa)**.
- For the acute resuscitation of adults with COVID-19 and shock, the Panel **recommends against** the initial use of **albumin** for resuscitation **(BI)**.
- For adults with COVID-19 and shock, the Panel recommends **norepinephrine** as the first-choice vasopressor **(AI)**.
- For adults with COVID-19 and shock, the Panel recommends titrating vasoactive agents to target a mean arterial pressure (MAP) of 60 to 65 mm Hg, over higher MAP targets **(BI)**.
- The Panel **recommends against** using hydroxyethyl starches for intravascular volume replacement in adult patients with COVID-19 and sepsis or septic shock **(AI)**.
- When norepinephrine is available, the Panel **recommends against** using **dopamine** for adult patients with COVID-19 and shock **(AI)**.
- As a second-line vasopressor, the Panel recommends adding either **vasopressin** (up to 0.03 units/min) **(BIIa)** or **epinephrine (BIIb)** to norepinephrine to raise MAP to target or adding **vasopressin** (up to 0.03 units/min) **(BIIa)** to decrease norepinephrine dosage.
- The Panel **recommends against** using **low-dose dopamine** for renal protection **(AI)**.
- The Panel recommends using **dobutamine** in adult patients with COVID-19 who show evidence of cardiac dysfunction and persistent hypoperfusion despite adequate fluid loading and the use of vasopressor agents **(BIII)**.
- The Panel recommends that all adult patients with COVID-19 who require vasopressors have an arterial catheter placed as soon as practical, if resources are available **(BIII)**.
- For adult patients with refractory septic shock who have completed a course of corticosteroids to treat COVID-19, the Panel recommends using low-dose corticosteroid therapy ("shock-reversal") over no corticosteroid therapy **(BIIa)**.

Oxygenation and Ventilation

- For adults with COVID-19 and acute hypoxemic respiratory failure despite conventional oxygen therapy, the Panel recommends starting therapy with high-flow nasal cannula (HFNC) oxygen; if patients fail to respond, noninvasive ventilation (NIV) or intubation and mechanical ventilation should be initiated **(BIIa)**.
- For adults with COVID-19 and acute hypoxemic respiratory failure despite conventional oxygen therapy who do not have an indication for endotracheal intubation and for whom HFNC oxygen is not available, the Panel recommends performing a closely monitored trial of NIV **(BIIa)**.
- For adults with persistent hypoxemia who require HFNC oxygen and for whom endotracheal intubation is not indicated, the Panel recommends a trial of awake prone positioning **(BIIa)**.
- The Panel **recommends against** the use of awake prone positioning as a rescue therapy for refractory hypoxemia to avoid intubation in patients who otherwise meet the indications for intubation and mechanical ventilation **(AIII)**.
- If intubation becomes necessary, the procedure should be performed by an experienced practitioner in a controlled setting due to the enhanced risk of exposing health care practitioners to SARS-CoV-2 during intubation **(AIII)**.
- For mechanically ventilated adults with COVID-19 and acute respiratory distress syndrome (ARDS):
  - The Panel recommends using low tidal volume (VT) ventilation (VT 4–8 mL/kg of predicted body weight) over higher VT ventilation (VT >8 mL/kg) **(AI)**.
  - The Panel recommends targeting plateau pressures of <30 cm H_2O **(AIIa)**.

CARDIOLOGICS DRUGS AND THEIR LINE OF INFUSION							
Name	Red Flag and/or Vesicant Properties	pH	Osmolality (mOsm/Kg)	Phlebitis (incidence ≥ 5%)	Diluent	Loading dose	Maintenance dose
Epinephrine [4-5]		2,5-3,5	NA	yes	D5W/NS	NA	0.05-2 mcg/Kg/min
Dobutamine [20-9]		2,5-4	269	yes	D5W	NA	2-20 mcg/Kg/min
		2,5-4	251	yes	NS	NA	2-20 mcg/Kg/min
Dopamine [21]		2,5-5	560	yes	D5W/NS	Variable**	Variable**
Phenilephrine [27]		4,7-5,3	270-300	no	D5W/NS	50-100 mcg	0.5-6 mcg/Kg/min
Isoproterenol [34]		2,5-4,5	NA	no	D5W/NS	0.02-0.06 mg	2-20 mcg/min
Norepinephrine [43-9]		3-4,5	280-300	yes	D5W	NA	0.01-3.3 mcg/Kg/min

BIBLIOGRAFIA

4) FDA et Al. *Highlights of prescribing information of Epinephrine*

5) OXALIplatin Paclitaxel, X. X., Potassium X X Phenobarbital, P. G., Phenylephrine, X. X., Phenytoin X Piperacillin, X. X., Benzoate, S., Ammunol, P., Bicarbonate, S., Teniposide X X Thiotepa X X Topotecan X X Vancomycin X X Vasopressin, X. X., VinBLAStine, X., VinCRIStine, X. X., & Vinorelbine, X. X. (n.d.). *extravasation/infiltration management chart*. https://hpo.johnshopkins.edu/hopkins/policies/39/20/policy_20.pdf?_=0.51083792631

9) Manrique-Rodríguez S, Heras-Hidalgo I, Pernia-López MS, et al. Standardayzation and Chemical Characterization of Intravenous Therapy in Adult Patients: A Step Further in Medaycation Safety. Drugs R D. 2021;21(1):39-64. doi:10.1007/s40268-020-00329-w

20) AIFA, *Scheda tecnica e riassunto delle caratteristiche della dobutamina*

21) AIFA, *Scheda tecnica e riassunto delle caratteristiche della dopamina*

27) AIFA, *Scheda tecnica e riassunto delle caratteristiche della fenilefrina*

34) Hospira, *data sheet for prescription of isoprenaline*

43) Hospira, I. (2007). *Norepinephrine Bitartrate Injection, USP, Data sheet for prescription.*

Contents lists available at ScienceDirect

Australian Critical Care

journal homepage: www.elsevier.com/locate/aucc

Research paper

Safety and efficacy of peripheral versus centrally administered vasopressor infusion: A single-centre retrospective observational study

Annaliese Stolz, BSc MBBS [a, b, g], Rachel Efendy, BSc MBBS [a, g], Yogesh Apte, MBBS FCICM [a, b, *], Alison Craswell, RN, PhD [c], Frances Lin, RN, PhD [d], Mahesh Ramanan, MBBS FCICM [a, b, e, f]

[a] Intensive Care Unit, Caboolture Hospital, Australia; [b] University of Queensland, Australia; [c] University of the Sunshine Coast, Queensland, Australia; [d] University of the Sunshine Coast, Sunshine Coast Health Institute, Queensland, Australia; [e] ICU, The Prince Charles Hospital, Australia; [f] The George Institute & University of NSW, Australia

ARTICLE INFORMATION

Article history:
Received 7 December 2020
Received in revised form
12 August 2021
Accepted 22 August 2021

Keywords:
Vasoconstrictor agents
Vasopressor
Peripheral intravenous cannula
Central venous catheter
Critical illness
Critical care
Patient safety

ABSTRACT

Background: Shock affects one-third of patients admitted to intensive care and is associated with increased mortality. Vasopressor medications are used to maintain blood pressure in shock. Central venous catheters are associated with serious complications and pose logistical difficulties for insertion. Delivery of vasopressors via peripheral intravenous cannula may be a safe alternative.

Methods: This is a retrospective cohort study comparing safety profile and outcomes of vasopressor delivery via peripheral and central routes in critically ill patients over a 12-month period in a mixed medical-surgical intensive care unit. Demographics, clinical characteristics, treatments, and safety outcome data were extracted from medical records. Patients were classified into three groups: vasopressor infusions via peripheral intravenous cannula, combined peripheral intravenous cannula followed by central venous catheter, and central venous catheter only. Groups were compared using the Kruskal–Wallis test for continuous variables and Fisher's exact test for categorical variables. The impact of duration of vasopressor infusion on complication rates was assessed using logistic regression.

Results: We identified 212 patients who received vasopressor infusion, 39 received via peripheral only (Group 1), 155 via peripheral followed by central (Group 2), and 18 via central only (Group 3). There were some baseline differences between groups. Group 1 had the lowest median Acute Physiology and Chronic Health Evaluation III score (64, interquartile range = 44–77), and Group 3, the highest (86, interquartile range = 57–101). Duration of vasopressor infusion was shortest in Group 1 and longer in Groups 2 and 3. There were no major complications; however, minor complications such as leakage, extravasation, and erythema occurred in 41% of Group 1 and 28% of Group 2 patients. Duration of peripheral vasopressor infusion was not associated with an increased risk of complications.

Conclusions: Administration of vasopressor infusions for short duration in critically ill patients via a peripheral venous cannula may be feasible, with low rates of complications, and offers a safe alternative to central venous access.

Contents lists available at ScienceDirect

Journal of Critical Care

journal homepage: www.journals.elsevier.com/journal-of-critical-care

Safety and efficacy of vasopressor administration through midline catheters

Nivedita Prasanna, M.D [a,*], David Yamane, M.D [a], Naeha Haridasa, B.A [b], Danielle Davison, M.D [a], Andrew Sparks, M.S [b], Katrina Hawkins, M.D [a]

[a] Department of Anesthesiology and Critical Care, George Washington University Hospital, Washington D.C., USA
[b] Department of George Washington University School of Medicine and Health Sciences, Washington D.C., USA

ARTICLE INFO

Keywords:
Midlines
Vasopressors
Vasoactive medications
Central lines
Safety
CLABSI
Peripheral IV access

ABSTRACT

Context: Vasopressors are commonly administered through Central Venous Catheters (CVCs) as it is considered unsafe to administer them via peripheral IVs, mainly due to the concern of local tissue injury. Unlike peripheral IVs, midline catheters provide a wider lumen with the catheter tip ending in a large peripheral vein. The use of vasopressors through midline catheters has not yet been evaluated.
Objective: The primary objective of this study is to determine the safety and efficacy of long term administration of vasopressors through a midline catheter.
Design: This is a retrospective study between 2016 and 2019 looking at the outcomes of midline catheters.
Setting: 45 bed Tertiary level ICU in a 600-bed teaching hospital.
Patients: A total of 248 patients received vasopressors via midline catheters.
Results: The average midline dwell time was 14.7 ± 12.8 days and the average duration of continuous vasopressor infusion was 7.8 ± 9.3 days. Vasopressors used with their average dose (AD) were norepinephrine ($n = 165$, 16.8 CE ± 10.7 μg/min), epinephrine ($n = 56$, 9.1 CE ± 6.0 μg/min), vasopressin ($n = 123$, 0.05 CE ± 0.02 units/min), phenylephrine ($n = 158$, 91.4 CE ± 64.7 μg/min) and Angiotensin II (50 CE ± 27.6 ng/kg/min). Early Complication rate was 3.6% due to Bloodstream infection ($n = 6$), drug extravasation ($n = 1$), thrombophlebitis ($n = 1$) and arterial puncture ($n = 1$). Late Complication rate was 0.8% ($n = 2$) due to midline-associated DVTs. There were no complications related to ineffective drug delivery or limb endangerment.
Conclusions: Many medical centers are attempting to limit the use of central venous catheters (CVCs) to avoid central line-associated bloodstream infections (CLABSIs). This study demonstrates that midline catheters are a safe alternative to CVCs, for the safe and efficacious administration of vasopressors for prolonged periods of time.

Table 2b. Therapeutic Management of Hospitalized Adults With COVID-19

Disease Severity	Recommendations for Antiviral or Immunomodulator Therapy		Recommendations for Anticoagulant Therapy
	Clinical Scenario	Recommendation	
Hospitalized for Reasons Other Than COVID-19	Patients with mild to moderate COVID-19 who are at high risk of progressing to severe COVID-19[a,b]	See Therapeutic Management of Nonhospitalized Adults With COVID-19.	For patients without an indication for therapeutic anticoagulation: • **Prophylactic dose of heparin**, unless contraindicated **(AI)**; **(BIII)** for pregnant patients
Hospitalized but Does Not Require Supplemental Oxygen	All patients	The Panel **recommends against** the use of **dexamethasone (AIIa)** or other systemic corticosteroids **(AIII)** for the treatment of COVID-19.[c]	
	Patients who are at high risk of progressing to severe COVID-19[a,b]	**Remdesivir**[d] **(BIIb)** for patients who are immunocompromised; **(BIII)** for other high-risk patients	
Hospitalized and Requires Conventional Oxygen[e]	Patients who require minimal conventional oxygen	**Remdesivir**[d,f] **(BIIa)**	For nonpregnant patients with D-dimer levels above the ULN who do not have an increased bleeding risk: • **Therapeutic dose of heparin**[h] **(CIIa)** For other patients: • **Prophylactic dose of heparin**, unless contraindicated **(AI)**; **(BIII)** for pregnant patients
	Most patients	Use **dexamethasone plus remdesivir**[f] **(BIIa)**. If remdesivir cannot be obtained, use **dexamethasone (BI)**.	
	Patients who are receiving dexamethasone and who have rapidly increasing oxygen needs and systemic inflammation	Add 1 of the following immunomodulators:[g] *Preferred* • **PO baricitinib (BIIa)** • **IV tocilizumab (BIIa)** *Alternatives* • **IV abatacept (CIIa)** • **IV infliximab (CIIa)**	
Hospitalized and Requires HFNC Oxygen or NIV	All patients	**Dexamethasone** should be administered to all patients **(AI)**. If not already initiated, promptly add 1 of the following immunomodulators *Preferred* • **PO baricitinib**[g,i] **(AI)** *Preferred Alternative* • **IV tocilizumab**[g,i] **(BIIa)** *Additional Alternatives (Listed in Alphabetical Order)* • **IV abatacept**[g,i] **(CIIa)** • **IV infliximab**[g,i] **(CIIa)** Add remdesivir to 1 of the options above in certain patients (for examples, see footnote).[j]	For patients without an indication for therapeutic anticoagulation: • **Prophylactic dose of heparin**, unless contraindicated **(AI)**; **(BIII)** for pregnant patients For patients who are started on a therapeutic dose of heparin in a non-ICU setting and then transferred to the ICU, the Panel recommends switching to a **prophylactic dose of heparin**, unless there is another indication for therapeutic anticoagulation **(BIII)**.
Hospitalized and Requires MV or ECMO	All patients	**Dexamethasone** should be administered to all patients **(AI)**. If the patient has not already received a second immunomodulator, promptly add 1 of the following (listed in alphabetical order): • **PO baricitinib**[j,k] **(BIIa)** • **IV tocilizumab**[j,k] **(BIIa)**	

Circa il 20% dei pazienti ricoverati over 80 è in terapia anticoagulante

Clinical Nutrition 42 (2023) 1671–1689

Contents lists available at ScienceDirect

Clinical Nutrition

journal homepage: http://www.elsevier.com/locate/clnu

ESPEN Guideline

ESPEN practical and partially revised guideline: Clinical nutrition in the intensive care unit

Pierre Singer [a, *], Annika Reintam Blaser [b, c], Mette M. B
Michael Casaer [f], Michael Hiesmayr [g], Konstantin Maye
Juan Carlos Montejo-Gonzalez [i], Claude Pichard [j], Jean-
Wojciech Szczeklik [l], Arthur R.H. van Zanten [m], Stephar

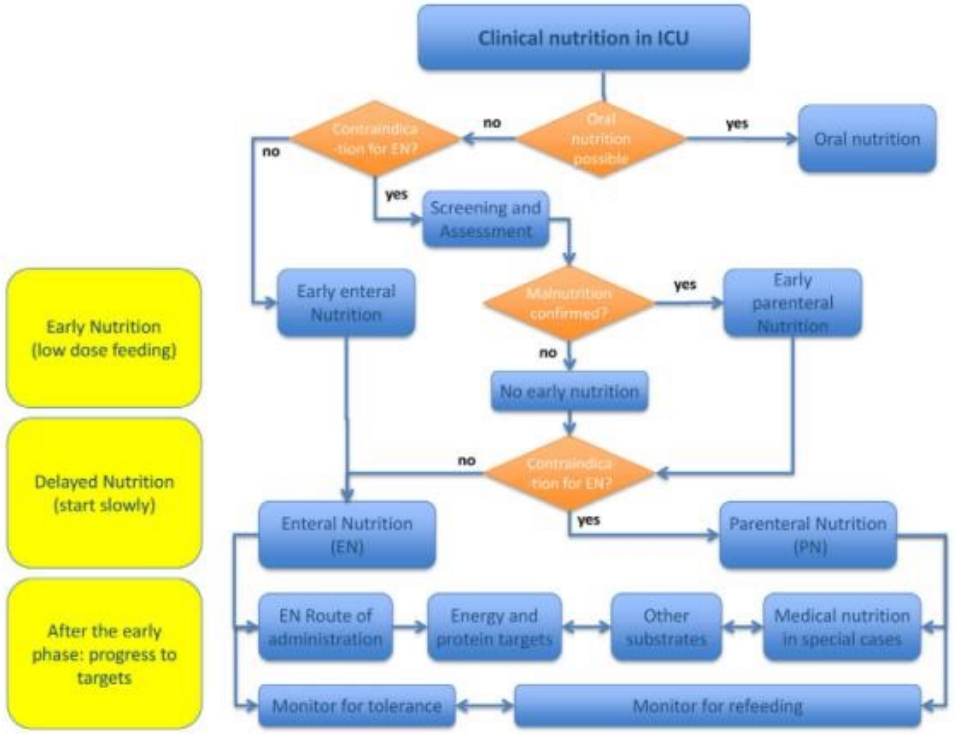


Fig. 1. ESPEN practical guideline: Clinical nutrition in the intensive care unit. Overview of the structure of the guideline. EN, enteral nutrition; ICU, intensive care unit; PN, parenteral

Contents lists available at ScienceDirect

Clinical Nutrition

journal homepage: http://www.elsevier.com/locate/clnu

ESPEN Guideline

ESPEN practical guideline: Clinical nutrition and hydration in geriatrics

Dorothee Volkert [a, *], Anne Marie Beck [b], Tommy Cederholm [c, d]
Lee Hooper [f], Eva Kiesswetter [a], Marcello Maggio [g], Agathe Rayı
Cornel Sieber [a, i], Lubos Sobotka [j], Dieneke van Asselt [k], Rainer \
Stephan C. Bischoff [m]

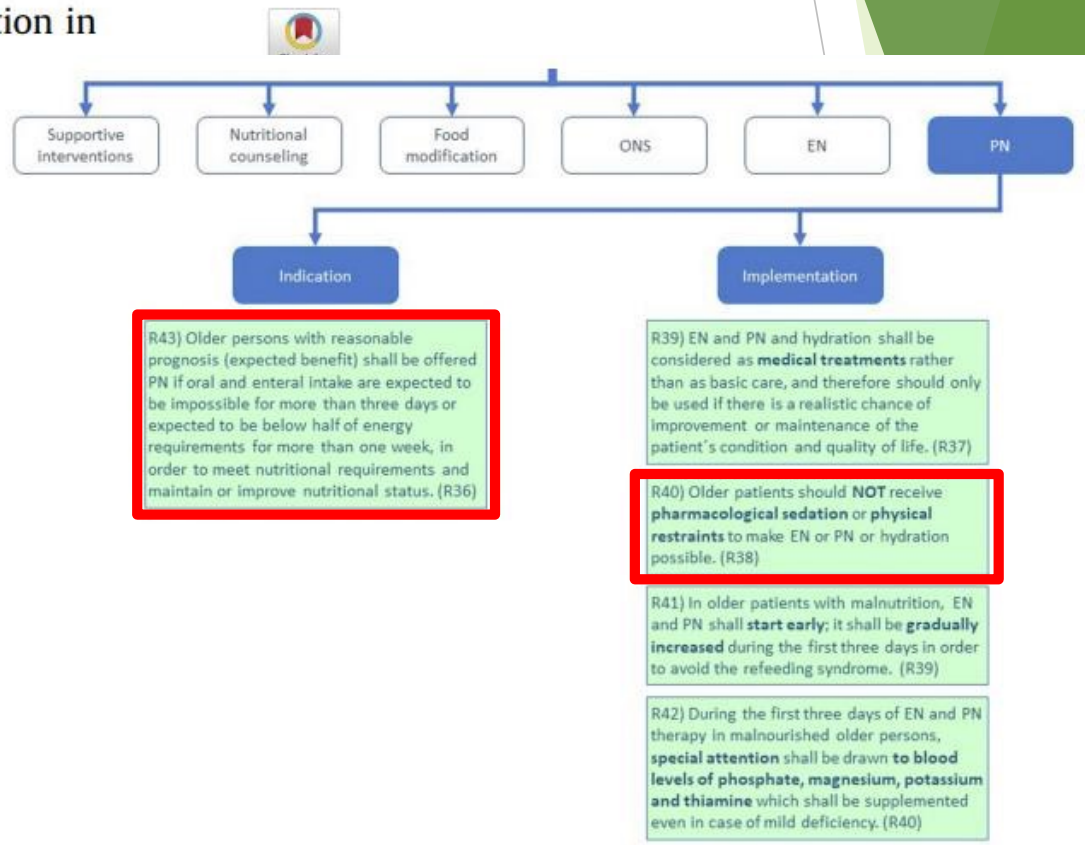


Fig. 7. Prevention and treatment of malnutrition in general (IV): Parenteral nutrition. EN, enteral nutrition; ONS, oral nutritional supplements; PN, parenteral nutrition.

Care of Critically Ill Adults With COVID-19

Last Updated: April 20, 2023

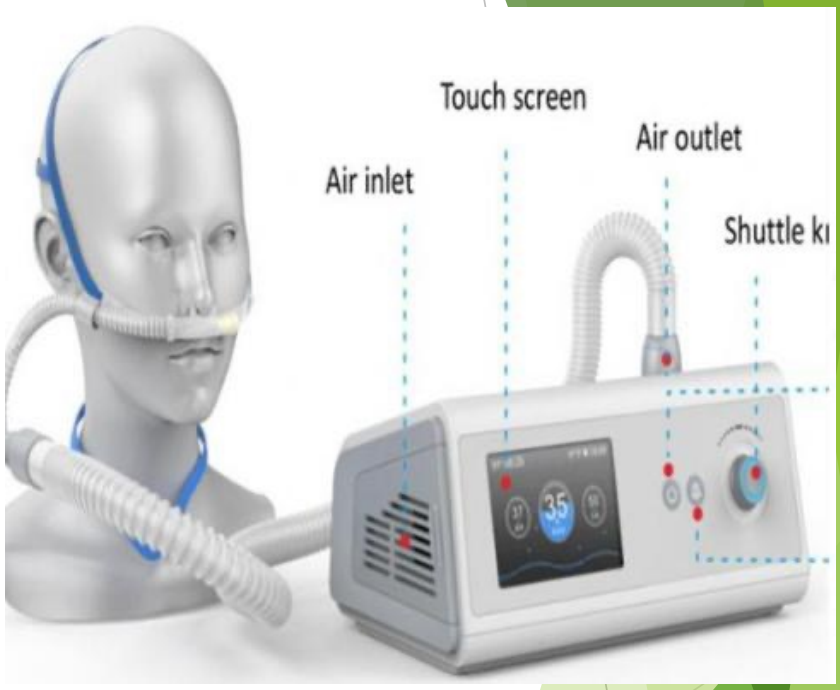
Summary Recommendations

Hemodynamics

- For adults with COVID-19 and shock, the COVID-19 Treatment Guidelines Panel (the Panel) recommends using dynamic parameters, skin temperature, capillary refilling time, and/or lactate levels over static parameters to assess fluid responsiveness **(BIIa)**.
- For the acute resuscitation of adults with COVID-19 and shock, the Panel recommends using buffered/balanced crystalloids over unbalanced crystalloids **(BIIa)**.
- For the acute resuscitation of adults with COVID-19 and shock, the Panel **recommends against** the initial use of **albumin** for resuscitation **(BI)**.
- For adults with COVID-19 and shock, the Panel recommends **norepinephrine** as the first-choice vasopressor **(AI)**.
- For adults with COVID-19 and shock, the Panel recommends titrating vasoactive agents to target a mean arterial pressure (MAP) of 60 to 65 mm Hg, over higher MAP targets **(BI)**.
- The Panel **recommends against** using hydroxyethyl starches for intravascular volume replacement in adult patients with COVID-19 and sepsis or septic shock **(AI)**.
- When norepinephrine is available, the Panel **recommends against** using **dopamine** for adult patients with COVID-19 and shock **(AI)**.
- As a second-line vasopressor, the Panel recommends adding either **vasopressin** (up to 0.03 units/min) **(BIIa)** or **epinephrine (BIIb)** to norepinephrine to raise MAP to target or adding **vasopressin** (up to 0.03 units/min) **(BIIa)** to decrease norepinephrine dosage.
- The Panel **recommends against** using **low-dose dopamine** for renal protection **(AI)**.
- The Panel recommends using **dobutamine** in adult patients with COVID-19 who show evidence of cardiac dysfunction and persistent hypoperfusion despite adequate fluid loading and the use of vasopressor agents **(BIII)**.
- The Panel recommends that all adult patients with COVID-19 who require vasopressors have an arterial catheter placed as soon as practical, if resources are available **(BIII)**.
- For adult patients with refractory septic shock who have completed a course of corticosteroids to treat COVID-19, the Panel recommends using low-dose corticosteroid therapy ("shock-reversal") over no corticosteroid therapy **(BIIa)**.

Oxygenation and Ventilation

- For adults with COVID-19 and acute hypoxemic respiratory failure despite conventional oxygen therapy, the Panel recommends starting therapy with high-flow nasal cannula (HFNC) oxygen; if patients fail to respond, noninvasive ventilation (NIV) or intubation and mechanical ventilation should be initiated **(BIIa)**.
- For adults with COVID-19 and acute hypoxemic respiratory failure despite conventional oxygen therapy who do not have an indication for endotracheal intubation and for whom HFNC oxygen is not available, the Panel recommends performing a closely monitored trial of NIV **(BIIa)**.
- For adults with persistent hypoxemia who require HFNC oxygen and for whom endotracheal intubation is not indicated, the Panel recommends a trial of awake prone positioning **(BIIa)**.
- The Panel **recommends against** the use of awake prone positioning as a rescue therapy for refractory hypoxemia to avoid intubation in patients who otherwise meet the indications for intubation and mechanical ventilation **(AIII)**.
- If intubation becomes necessary, the procedure should be performed by an experienced practitioner in a controlled setting due to the enhanced risk of exposing health care practitioners to SARS-CoV-2 during intubation **(AIII)**.
- For mechanically ventilated adults with COVID-19 and acute respiratory distress syndrome (ARDS):
  - The Panel recommends using low tidal volume (VT) ventilation (VT 4–8 mL/kg of predicted body weight) over higher VT ventilation (VT >8 mL/kg) **(AI)**.
  - The Panel recommends targeting plateau pressures of <30 cm H_2O **(AIIa)**.



Original research article

JVA | The Journal of Vascular Access

Effects of positive airway pressure on basilic vein diameter and venous flow velocity in healthy volunteers

The Journal of Vascular Access
1–7

DOI: 10.1177/11297298221124405
journals.sagepub.com/home/jva
SAGE

Gianluca Salinaro[1], Massimiliano Pirrone[2], Chiara Cardone[1], Marta Cova[3], Chiara Abbruzzese[2] and Alessandro Galazzi[1]

Abstract

Introduction: The placement of vascular catheters of adequate size in accordance to catheter-to-vein ratio (CVR) recommendations represents one of the cornerstones of catheter-related upper vein thrombosis prevention. However there is scarcity of data on its effect on the venous dynamics of the basilic vein, a common site for long-term catheter placement. This study investigates the effects of the application of positive airway pressure on the diameter and blood flow velocity of basilic vein. We also measured the effects of under-armpit straps, a device commonly used to keep continuous positive airway pressure (CPAP) helmets in place.

Methods: We enrolled 28 healthy volunteers. Basilic vein diameter and minimum/maximum blood flow velocity, according to respiratory venous flow oscillation, were measured by ultrasound on the midpoint of their dominant arm during spontaneous breathing and during breathing in a CPAP helmet with 10 cm H_2O of airway pressure applied, with the helmet kept in place either through armpit straps or by tying the helmet to the bed.

Results: The application of 10 cm H_2O of positive airway pressure significantly increased basilic vein diameter by 0.9 ± 0.2 mm, while reducing minimum blood flow velocity by 1.8 ± 0.4 cm/s. These effects were amplified by the application of under armpit straps.

Conclusions: Breathing with positive airway pressure increases basilic vein diameter while reducing blood flow-velocity. This phenomenon might lead to an incorrect assessment of CVR, misleading the operator into choosing improperly large catheters.

Riassumendo:

- I pazienti covid sono di meno rispetto al passato, abbiamo più tempo per gli impianti
- Sono più anziani e quindi con ricoveri più lunghi
- La necessita di effettuare prelievi risulta essere più importante rispetto alle prime ondate
- Il Remdesevir e la maggior parte degli antibiotici per infezioni da multidrug resistent vanno infusi in centrale
- Frequenti tentativi di autorimozione nell'anziano anche con securacath e a metà coscia motivo per cui i PICC essendo più lunghi possono consentire un cambio del catetere su guida in un numero maggiore di casi

- Il PICC risulta essere la prima scelta in questi pazienti contrariamente a quanto avveniva nelle prime fasi della pandemia dove le cannule lunghe riuscivano a soddisfare i bisogni dei pazienti

Editorial

JVA | The Journal of Vascular Access

The Journal of Vascular Access
1–11

DOI: 10.1177/11297298231209253
journals.sagepub.com/home/jva
Sage

Femoral venous access: State of the art and future perspectives

Maria Giuseppina Annetta[1], Stefano Elli[2], Bruno Marche[1], Fulvio Pinelli[3] and Mauro Pittiruti[1]

Abstract

In the past 5 years, non-dialysis femoral venous access has changed in terms of indications, techniques of insertion, and expected incidence of complications. To the traditional non-emergency indication for femoral catheters—obstruction of the superior vena cava—many other indications have been added, both in intensive and non-intensive care. The insertion technique has evolved, thanks to ultrasound guided venipuncture, tunneling, and ultrasound based intraprocedural tip location. Insertion of femorally inserted central catheters may be today regarded as a procedure with an extremely low intraprocedural and post-procedural risk. The risk of infection is reduced by the possibility of the exit site at mid-thigh, by the use of cyanoacrylate glue for sealing the exit site, and by appropriate intraprocedural strategies of infection prevention. The risk of catheter-related thrombosis is low, due to several concomitant strategies: a proper match between vein diameter and catheter caliber; an accurate intraprocedural assessment of tip location by ultrasound and/or intracavitary ECG; the consistent use of ultrasound guided venipuncture and micro-introducer kits; an adequate stabilization of the catheter at the exit site. The risk of mechanical complications and the risk of lumen occlusion are minimized when using polyurethane, power injectable catheters. All these novelties have brought a revolution in the field of femoral venous access, so that this route may be considered as safe and effective as other approaches to central venous catheterization.

Eccezioni:

- I pazienti scoagulati che hanno un ridotto rischio di trombosi possono essere gestiti con un periferico
- Covid per caso ricoverati per altri motivi con degenza stimata inferiore alle 2 settimane possono ricadere nelle precedenti indicazioni gavecelt ed essere gestiti con una cannula lunga/midline.
- Pazienti con prognosi infausta a breve termine dove un periferico stabile (midline) può essere la migliore scelta.

Grazie per l’attenzione!