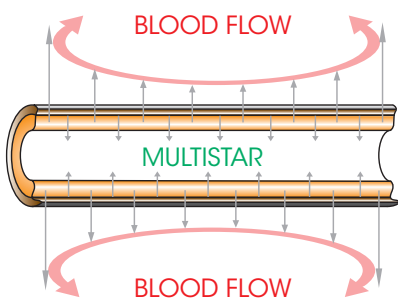




VYGON MULTISTAR+

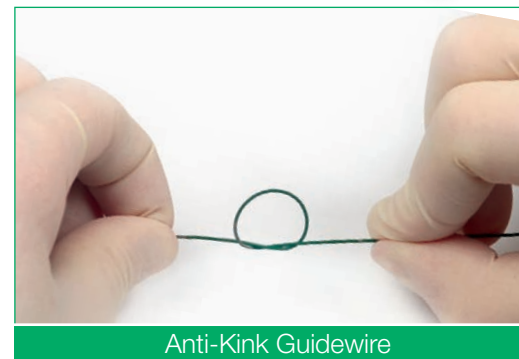
Antibiotic Incorporated Catheters



Antibiotic Incorporated



Bloodless System



Anti-Kink Guidewire

A Breakthrough in Antimicrobial Technology

The cost of CVC-associated bloodstream infections is substantial, both in terms of morbidity and in terms of financial resources expended. To improve patient outcome, and reduce healthcare costs, strategies should be implemented to reduce the incidence of these infections.¹

In a multi-centre, randomised trial Multistar incorporated on both the internal and external surfaces with Miconazole/Rifampicin was associated with lower rates of colonisation and CRBSI.²⁻⁵

Rifampicin-miconazole-impregnated catheters are associated with a statistically significant reduction in the incidence of catheter-related bacteremia in patients with short-term catheter use at the central jugular and femoral sites.⁶

Studies have suggested that the utilisation of antiseptic and antibiotic-impregnated CVCs represent an attractive alternative for the prevention of CRBSIs and may lead to significant savings.⁷

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Clinical Trial Results

Objective

To determine the efficacy of catheters coated with Miconazole and Rifampicin in preventing catheter-related colonisation and bloodstream infections.

Design

Multicentre, randomised prospective clinical trial.

Setting

Two University Hospitals, Cologne and Aachen, Germany.

Patients

300 hospitalised patients, age 18 to 80.

Microbiological Methods

Catheters were removed aseptically, the catheter segments were semi-quantitatively cultivated by the roll plate method and then quantitatively cultured by using the sonication method. Modified Kirby-Bauer technique was used for determination of the antimicrobial activity of the incorporated catheters.

Conclusion

In this multicentre, randomised trial, catheters incorporated on both the internal and external surfaces with Miconazole and Rifampicin were associated with lower rates of colonisation and CRBSI.³⁻⁵

In vitro antimicrobial activity of coated catheters

Organism	Zone of Inhibition (mm)	
	Rifampicin-Miconazole	CSS Catheter
S. epidermidis (n = 106)	33.0 ± 6.0	16.1 ± 1.5
S. aureus (n = 15)	26.0 ± 3.1	13.0 ± 1.2
E. faecalis (n = 8)	17.0 ± 3.5	7.0 ± 3
P. aeruginosa (n = 8)	10.9 ± 4	3.0 ± 2
E. coli (n = 3)	14.5 ± 3.2	11.0 ± 3.1
Enterobacter sp. (n = 2)	11.0 ± 3	5.3 ± 1.2
C. albicans (n = 3)	14.0 ± 3.1	6.9 ± 2.1

The mean zones of inhibition were compared with catheters coated with chlorhexidine and silver sulphadiazine (CSS).

How it Works

The Principle of the Multistar+ Antibiotic Incorporation Process⁸ :

The active ingredients used in Multistar+ are Rifampicin and Miconazole.

Rifampicin is a competitive inhibitor of bacterial RNS polymerase with potent activity against gram-positive microorganisms, and a high physico-chemical compatibility with polyurethanes.

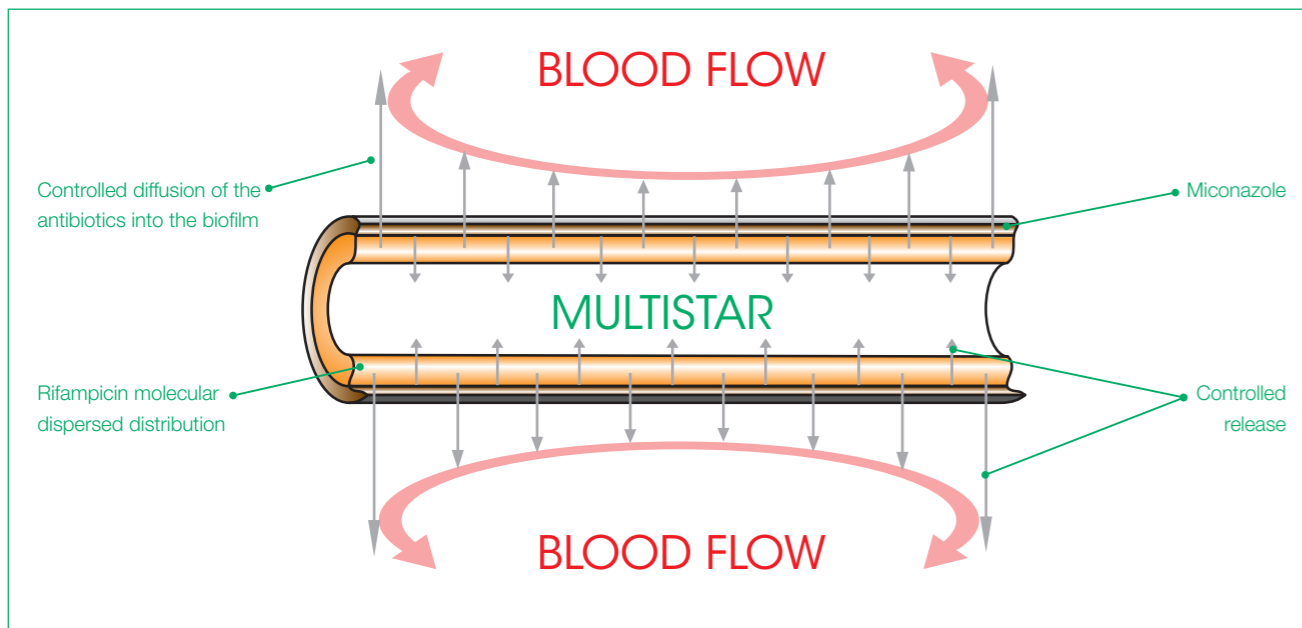
Miconazole is a synthetic antifungal with a wide spectrum of antimicrobial activity and a low toxicity, and has been used for years in the topical and systemic treatment of mycotic infections.

Rifampicin and Miconazole are molecularly integrated into the polyurethane catheter material by using a patented multistep diffusion-controlled incorporation process. The active ingredients are entirely dissolved in the polymer like in an alloy.

When the catheter comes into contact with blood, body fluids or infusion solutions, the Rifampicin and Miconazole are released at a slow steady rate.

This suppresses microbial growth in the catheter's biofilm, reducing the incidence of catheter associated infections.

The use of the entire catheter as a reservoir for the antibiotics, combined with the slow release mechanism, means that the Rifampicin and Miconazole will be released for the life of the product.



Benefits of Multistar+



Multistar+

- Biocompatible and safe.
- Clinically proven to reduce CRBSI and colonisation.³⁻⁵
- Effective broad spectrum of activity against bacteria and fungi.
- Long lasting protection for the life of the catheter.



Bloodless system (BLS device)

BLS device connects to the puncture needle to provide maximum protection against blood loss and air embolism.

- Ergonomic, small size, no change in placement technique.
- Easy-to-use.
 1. Luer-lock device onto standard puncture needle.
 2. Then connect luer-slip syringe to BLS device.



Echogenic puncture needle

- Ergonomic hub.
- Arrow indicates bevel orientation.
- Smooth insertion.
- Good ultrasound visibility.



Teflon-coated nitinol 'J' guidewire

- Excellent tensile strength.
- No risk of uncoiling.
- No kinking.
- Teflon coated for smooth placement.



Guidewire advancer

- Ergonomic.
- Easy-to-use.
- With detachable end to directly handle the guidewire.

Code	XRO Catheter (PUR)			Flow Rate (ml/min)					Priming Volume (ml)				Catheter Lumen Gauge					No of lumen	
	Length (cm)	FG	OD (mm)	Dist	Med 1	Med 2	Med 3	Prox	Dist	Med 1	Med 2	Med 3	Prox	Dist	Med 1	Med 2	Med 3		Prox
6159.167	16	9.5	3.15	57	84	16	16	18	0.43	0.57	0.36	0.36	0.40	16	14	18	18	18	5
6159.207	20	9.5	3.15	55	80	15	12	17	0.44	0.59	0.38	0.36	0.41	16	14	18	18	18	5
6159.307	30	9.5	3.15	38	6.8	7.8	8.4	9.4	0.51	0.65	0.40	0.42	0.45	16	14	18	18	18	5
6158.167	16	8.5	2.85	61	100	17	-	22	0.38	0.50	0.30	-	0.33	16	14	18	-	18	4
6158.207	20	8.5	2.85	56	100	15	-	14	0.41	0.33	0.59	-	0.38	16	14	18	-	18	4
6158.307	30	8.5	2.85	43	80	12	-	10	0.50	0.70	0.30	-	0.30	16	14	18	-	18	4
6155.167	16	7.5	2.70	63	34	-	-	36	0.38	0.33	-	-	0.38	14	18	-	-	18	3
6155.207	20	7.5	2.70	60	30	-	-	30	0.45	0.34	-	-	0.38	14	18	-	-	18	3
6155.307	30	7.5	2.70	50	18	-	-	20	0.49	0.40	-	-	0.50	14	18	-	-	18	3

Procedure Packs

Reducing the risk of infection

The components available in Vygon's procedure packs have been specifically selected for their **high quality**, and in the case of sterile drapes to provide **maximum barrier protection** which helps to reduce the risk of infection to the patient.^{9,10}

Saving time and money

With the ever increasing demand to improve the efficiency of hospitals and utilise available time, our procedure packs help by reducing the number of stock items required for the procedure, thereby **decreasing waste, ordering costs and packaging**.

This in turn **reduces set-up time**, giving skilled clinicians more time for hands-on patient care.

Our commitment to you

A sales executive is also always on hand to provide any additional **training**, help and advice needed to ensure your pack is a success.



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