



# Angiodroid - The CO<sub>2</sub> Injector

Automated Carbon Dioxide Angiography

angiodroid

ACDA

AUTOMATED  
CARBON  
DIOXIDE  
ANGIOGRAPHY

# WHEN to use ACDA?

eGFR (ml/min/m <sup>2</sup> )	Albuminuria (mg/g)		
	< 30	30-299	> 300
> 90			
60 – 90			
45 – 59			
30 – 44			
15 – 29			
< 15			

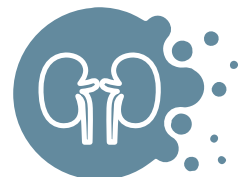
**ACDA to avoid CIN risk**

**ACDA suggested**

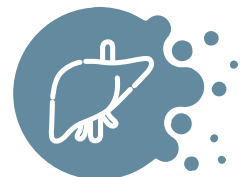
**ACDA recommended**

**ACDA strongly recommended**

**ACDA UNIQUE Option**



**No Contrast Induced Nephropathy Risk**



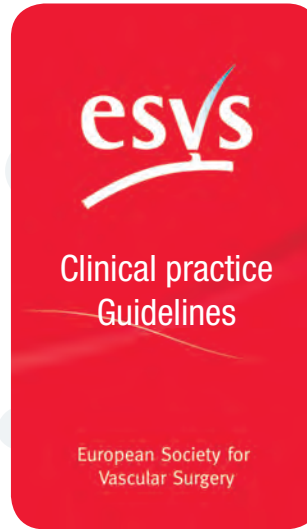
**No hepatotoxicity**



**No Allergic reactions**

# Carbon Dioxide is the **Only Safe Contrast Agent** for patients with:

- ✓ Renal Failure
- ✓ Creatinine > 1.5 mg/dl
- ✓ eGFR < 60 ml/min/1.73 m<sup>2</sup>
- ✓ Allergy
- ✓ Diabetes
- ✓ Hypertension



Iodinated contrast agents can cause further deterioration of residual renal function.

CO<sub>2</sub> angiography is an effective alternative, without the risk of further impairment of renal function. CO<sub>2</sub> angiography has a sensitivity of 97% and a specificity of 85%.

Due to the acceptable results of CO<sub>2</sub> angiography and the potential risk of NSF, gadolinium enhanced DSA is no longer indicated.

ESVS Vascular Access: 2018 Clinical Practice Guidelines.



diaphragm

## ARTERIES

CO<sub>2</sub> can be used in all districts below the diaphragm



**HEPATIC ARTERY**



**EVAR**



**EMBOLIZATION TACE**



**AORTOGRAPHY ILIAC**



**SMA**



**SFA - POP**



**RENAL ARTERIES**



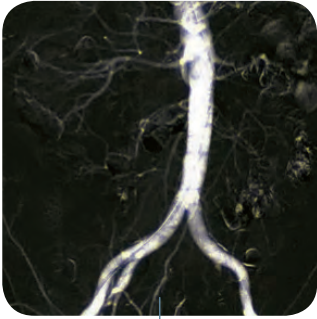
**BTK**



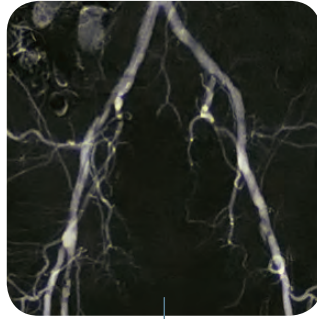
**GI BLEEDING AND TRAUMA**



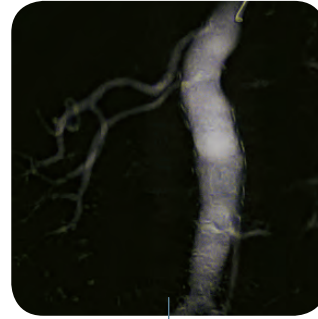
**FOOT**



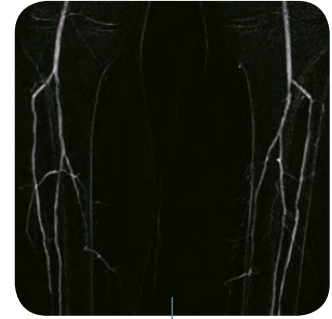
**Aortography**



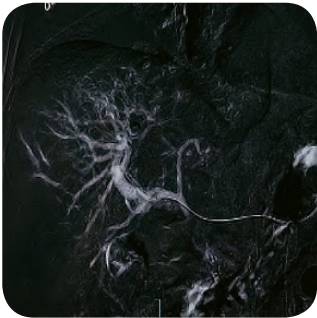
**Aortic Bifurcation**



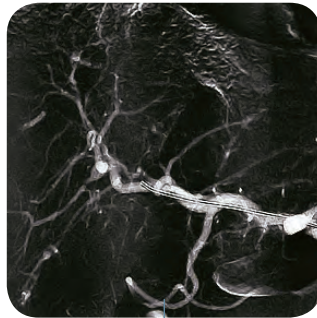
**Renal Arteries**



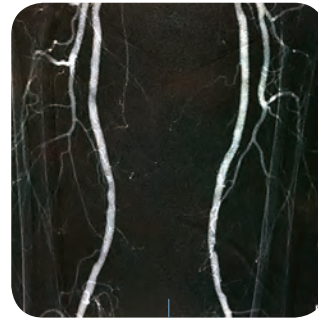
**BTK**



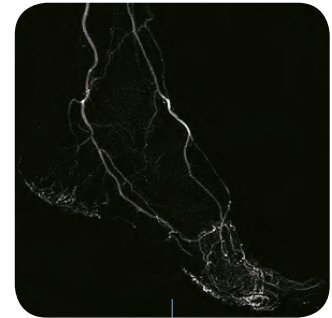
**TACE**



**Hepatic Artery**



**SFA**



**Foot**



## VEINS

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Also the peripheral venous system is investigable with CO<sub>2</sub>



**SUBCLAVIAN VEIN**



**BASILIC VEIN**



**CEPHALIC VEIN**



**ILIAC VEIN**



**RADIAL VEIN**



**GREAT SAPHENOUS VEIN**



**AV SHUNT PHLEBOGRAPHY**



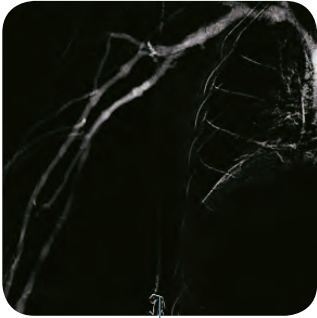
**SMALL SAPHENOUS VEIN**



**TIPS**



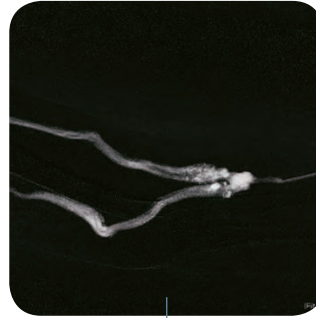
**POPLITEAL VEIN**



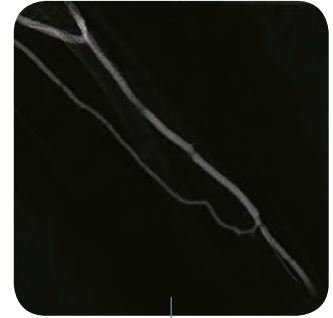
**Subclavian Vein**



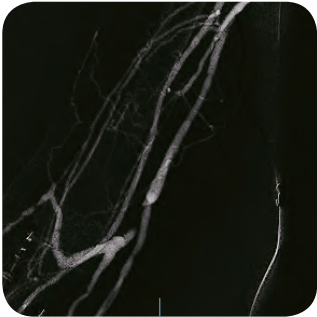
**Basilic Vein**



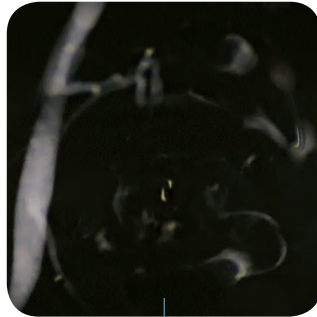
**AV shunt**



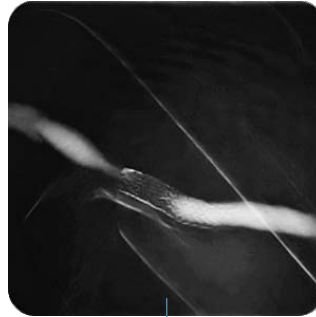
**Radial Vein**



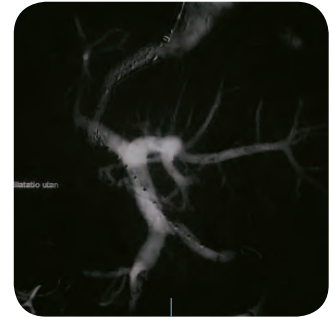
**Cephalic Vein**



**Iliac Vein**



**Arm Stent**



**TIPS**



### **HIGH ACCURACY**

For CO<sub>2</sub> dose and injection pressure

### **MAXIMUM SPEED**

Injector ready in 6 seconds

**R-FAST**

### **HIGH PERFORMANCE**

More than 400 procedures with an integrated 2L CO<sub>2</sub> cylinder

### **IMPROVED SAFETY**

Inject with remote controller, up to 15 meters away

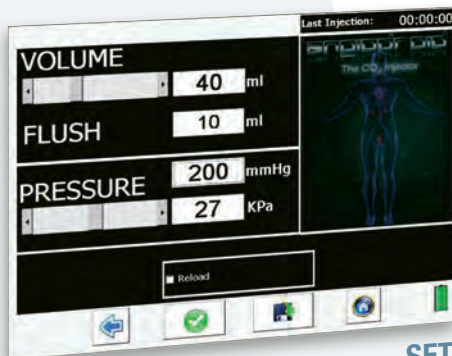
### **COMPLETELY SAFE**

Internal positive pressure prevents air contamination

### **ALWAYS READY**

Standardize your work with unique protocols

## 1st Automated Injection System for $CO_2$ Angiography



LAST INJECTION: 00:01:45

BODY DISTRICT	V (ml)	P (mmHg)	P (KPa)	Flush (ml)
AORTA/PELVIS	60	500	67	15
EVAR / FEVAR	100	650	87	15
ILIAC ARTERY	40	350	47	15
RENAL ARTERY	40	300	33	0
ABOVE THE KNEE	20	250	33	0
BELOW THE KNEE	30	250	33	15
MICROCATHETER	40	500	67	15
SUBCLAVIAN VEIN	50	300	40	0
TIPS	100	700	93	15

SAVE

PROCEDURE RESUME

Executed injections	2
Total injection volume	110 ml
Total injected flush volume	10 ml
Total injected $CO_2$	100 ml
Average injection volume	50.0 ml
Average injection pressure	150.0 mmHg

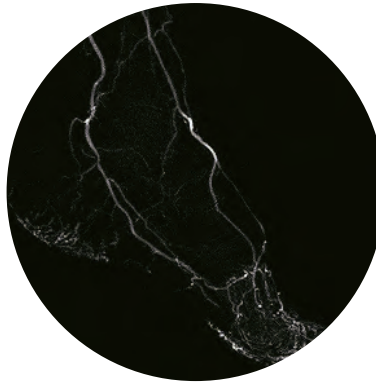
REVIEW

## *Zero Contrast Procedure*



### ***SAVE COST***

Avoid iodine and related complications (e.g. CIN risk and adverse reactions).



### ***EXCELLENT IMAGING***

ACDA ensures optimum CO<sub>2</sub> image quality and complete injection management.



### ***IMPROVED SAFETY***

Inject remotely to reduce X-ray dose even from the control room.



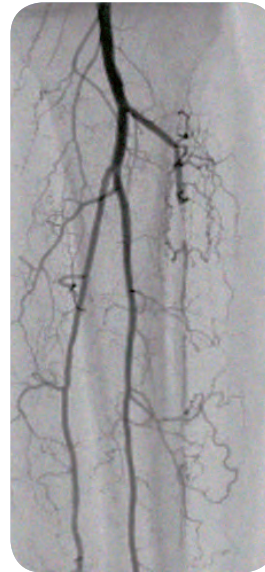
## Makes the *Difference*

### ACDA as **Standard Imaging Option**

Images courtesy of Dr. P. Sbarzaglia.



**SEE MORE**



**SAVE ICM**



Perform the  
**complementary**  
approach with  
dedicated device

**SAVE KIDNEYS**



# angiodroid

## ACDA

AUTOMATED  
CARBON  
DIOXIDE  
ANGIOGRAPHY



[www.angiodroid.com](http://www.angiodroid.com)



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