Interim 30-day analysis from the KANSHAS 1 study of the novel KANSHAS drug coated balloon for treatment of femoropopliteal occlusive disease; a latest first-in-human study

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on behalf of KANSHAS 1 investigators;

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Conflict of Interest - Disclosure

Within the past 12 months, I or my spouse/partner have had a financial interest/arrangement or affiliation with the organization(s) listed below.

Affiliation/Financial Relationship **Company**

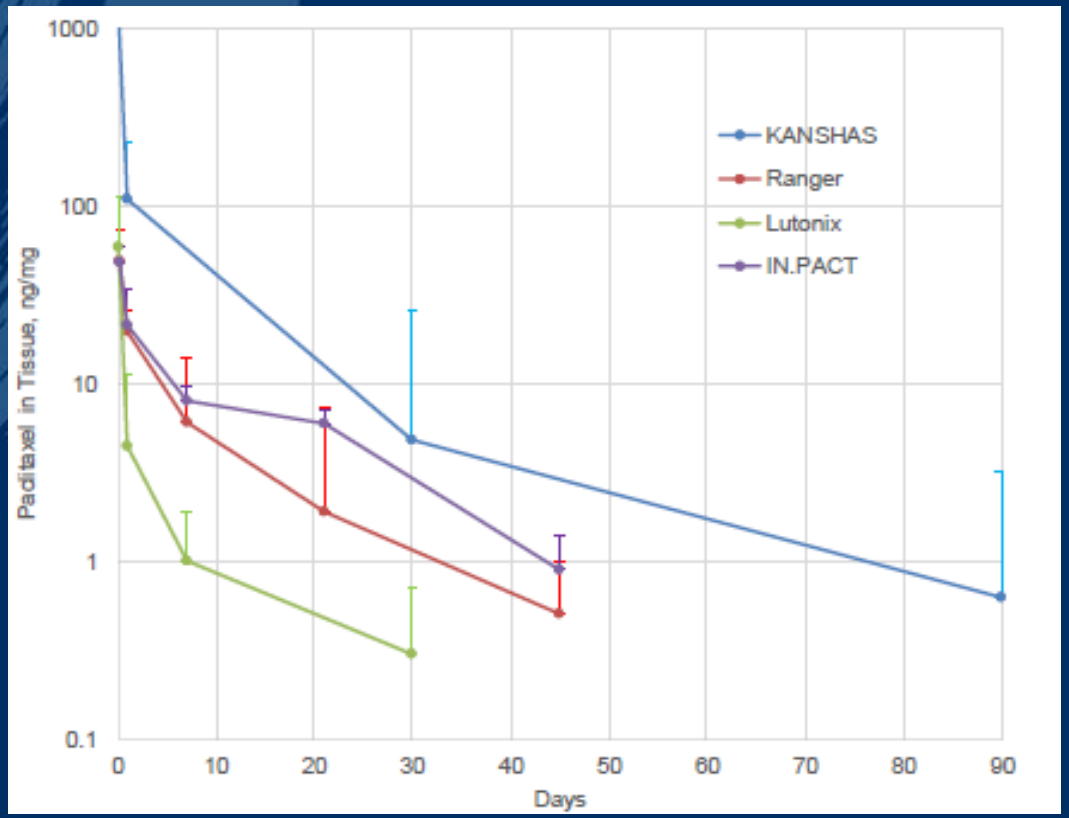
1. **Honoraria for lectures**: CR Bard, Veniti, AB Medica, Volcano, Optimed GmbH, Straub Medical, Terumo, Biotronik, Veryan
2. **Honoraria for advisory board activities**: Veniti, Optimed GmbH, Straub Medical, Biotronik, Veryan, Boston Scientific
3. **Participation in clinical trials**: Biotronik, CR Bard, Veryan, Straub Medical, Veniti, TVA Medical, Boston Scientific, LimFlow, Terumo
4. **Research funding**: Biotronik, Boston Scientific, Veryan, Veniti, AB Medica

Objective

- Drug coated balloon therapy has demonstrated a higher effectiveness compared to standard PTA and been widely accepted as a valuable treatment option for patients with femoropopliteal disease.
- KANSHAS drug coated balloon has been developed to address some limitations of first generation DCBs related to coating integrity.
- This KANSHAS 1 first-in-human study aims at investigating safety profile and therapeutic advantages of the novel KANSHAS DCB in treatment of de novo femoropoliteal lesions.

KANSHAS DCB device 1

PXL tissue concentration



1) TR15-159 - Pharmacokinetic Evaluation of Paclitaxel Release from Terumo DCB
2) Catheterization and Cardiovascular Interventions 83:132-140 (2014) – [Lutonix data source]
3) IN.PACT DEB technology and Pre-clinical Science presented at Leipzig Interventional Course (2013)
4) JACC Cardiovascular Interventions; 8(8):1115-23 (2015) [IN.PACT and Range data]

Specification

Drug: Paclitaxel (3.2µg/mm²)
Balloon diameter: 4.0 – 6.0 mm
Catheter length: 150 cm
Nominal pressure: 8 atm (RBP 14 atm)

Excipient: L-Serine Ethyl Ester HCl
Balloon length: 40 – 150 mm
Compatible GW size: 0.018”
Rapid exchange type

Non-CE marked device as of Jan 2018

KANSHAS 1 study overview

To assess safety and efficacy of the KANSHAS drug coated balloon catheter in the treatment of de novo lesions in the superficial femoral and/or popliteal arteries

Prospective, multi-center, open, single arm study with 2-year follow-up

50 patients enrolled at 7 sites in Germany and Belgium from April 2017 to January 2018

- Karolinen-Hospital: Klinikum Arnsberg
- Universitäts-Herzzentrum Freiburg-Bad Krozingen
- Ev Luth Diakonissenanstalt zu Flensburg Zentrum für Gesundheit und Diakonie
- RoMed Klinikum Rosenheim

- AZ St. Blasius Dendermonde
- Imelda Ziekenhuis Bonheiden
- ZNA Stuivenberg Antwerpen

Enrollment completed and FUs are on-going

Study management

- Steering Committees
- Clinical Event Committee (CEC)
- Data Monitoring Committee
- Angiographic Core Laboratory (BIDMC)
- Ultrasound Core Laboratory (Vascore)
- Independent monitors (Genae)
- Managed and sponsored by Terumo Europe

100% source data validation and independent core labo assessment
Adverse events adjudication by CEC

Clinical Follow-up: 30 pts completed 30d FU

Primary endpoint
Composite Safety at 6m

Defined as freedom from device and procedure related deaths through 30 days, freedom from target limb amputation, and clinically driven target lesion revascularization (TLR) through 6 months

KANSHAS 1 study eligibility

General Inclusion Criteria:

- Clinically significant symptomatic leg ischemia, requiring treatment of the **SFA and/or popliteal artery**
- **Rutherford Clinical Category of 2-4**
- **Resting ABI of <0.9 or abnormal exercise ABI**
- Informed Consent given
- ≥18 years old
- Life expectancy is >2 year

Main Angiographic Inclusion Criteria:

- **Cumulative lesion length 4-15 cm**
- Target vessel diameter 4-6 mm
- Clinically and hemodynamically significant **de novo stenosis (>70% stenosis) or occlusion including P3 segment**
- Patent inflow artery (≥50% DS)
- At least one patent outflow artery

Main Exclusion Criteria:

- Pregnant or lactating females
- Recent haemorrhagic stroke
- Known intolerance and contraindications to study medications and agents
- Recently diagnosed severe comorbidities
- Aneurismal disease of the abdominal aorta and target limb
- Acute thrombus in target vessel
- Use of adjunctive therapies
- In-stent restenosis
- **Vessel injuries after predilatation; flow-limiting dissection, requiring stenting, or perforation**
- **Subintimal recanalization**
- **Severe calcification**
- Previous treatment with DCB or DES in target vessel
- Previous peripheral bypass in target limb

Baseline Characteristics_Inital 30 pts

Demographic	
Patients, n	30
Male Gender (%)	63.3% (19/30)
Age Years	
Mean ± SD (N)	70.2±10.4 (30)
Median (Min , Max)	74.0 (49.0 , 88.0)
CAD (%)	33.3% (10/30)
CVD (%)	13.3% (4/30)
Renal Insufficiency (%)	10.0% (3/30)
COPD (%)	13.3% (4/30)
Drug Related Allergies (%)	13.3% (4/30)
Current/previous Smoker (%)	79.3% (23/29)
Diabetes Mellitus (%)	30.0% (9/30)
Arterial Hypertension (%)	86.7% (26/30)
Hyperlipidemia (%)	73.3% (22/30)
Previous PAD (%)	36.7% (11/30)

Rutherford Classification	
Category 2	16.7% (5 / 30)
Category 3	80.0% (24 / 30)
Category 4	3.3% (1 / 30)
ABI value	
Mean ± SD (N)	0.64±0.14 (30)
Median (Min , Max)	0.69 (0.20 , 0.89)

CAD= Coronary artery disease, CVD= Cerebral vascular disease,
COPD= Chronic obstructive pulmonary disease
PAD= Peripheral Artery Disease

Lesion Characteristics

Target lesion assessment	
Cumulative target lesion length (mm)	
Mean ± SD (N)	84.7±32.2 (30)
Median (Min , Max)	80.0 (40.0 , 140.0)
Reference vessel diameter (mm)	
Mean ± SD (N)	5.4±0.6 (30)
Median (Min , Max)	5.5, (4.0 , 6.0)
Baseline % diameter stenosis	
Mean ± SD (N)	92.3±7.8 (30)
Median (Min , Max)	90.0 (70.0 , 100.0)
Lesion location	
Mid SFA	50.0% (15/30)
Distal SFA	33.3% (10/30)
P1	23.3% (7/30)
P2	20.0% (6/30)
P3	3.3% (1/30)

Lesion Calcification	
None	33.3% (10 / 30)
Mild	36.7% (11 / 30)
Moderate	23.3% (7 / 30)
Severe	6.7% (2 / 30)
Inflow assessment	
Ipsilateral inflow lesion	3.3% (1/30)
Successful inflow treatment (< 30% residual stenosis)	100.0% (1/1)
Outflow assessment	
Patent run-off vessels	
1 vessel	23.3% (7 / 30)
2 vessels	20.0% (6 / 30)
3 vessels	56.7% (17 / 30)

Procedural Characteristics

Target lesion Predilatation	
Predilatation with a standard bare PTA balloon	96.7% (29/30)
Inflation time (sec)	
Median (Min , Max)	90.0 (20.0 , 180.0)
DCB procedure	
Number of DCB devices used/pts	
Mean ± SD (N)	1.1±0.4 (30)
Device transit time (sec)	
Mean ± SD (N)	22.8±12.4 (33)
Device Inflation Time (min)	
Median (Min , Max)	3.0 (2.0 , 5.5)

Post DCB	
Dissection Grade after DCB	
Tyep A	26.7% (4 / 15)
Type B	33.3% (5 / 15)
Type C	33.3% (5 / 15)
Type D	6.7% (1 / 15)
Postdilatation	36.7% (11/30)
Bail-out stent	30.0% (9/30)
due to flow limited dissections or residual stensis > 50%	20% (6/30)
Final Residual Diameter Stenosis (%)	
Mean ± SD (N)	11.2±8.9 (30)
Median (Min , Max)	10.0 (0.0 , 30.0)
Postprocedural run-off vessels	
1 vessel	23.3% (7 / 30)
2 vessels	16.7% (5 / 30)
3 vessels	60.0% (18 / 30)

Postprocedual outcomes

Acute success	
Device success	100.0% (34/34)
Technical success	100.0% (30/30)
Procedural success	100.0% (30/30)
Postprocedural outcomes at Predischarge	
Rutherford Classification	
Category 0	46.7% (14 / 30)
Category 1	20.0% (6 / 30)
Category 2	3.3% (1 / 30)
Category 3	26.7% (8 / 30)
Category 4	3.3% (1 / 30)
ABI value	
Mean ± SD (N)	0.88±0.14 (30)
Median (Min , Max)	0.90 (0.60 , 1.09)

Change from Baseline at Predischarge	
Rutherford class	
-2 Category change	33.3% (10 / 30)
-3 Category change	33.3% (10 / 30)
0 Category change	33.3% (10 / 30)
ABI value	
Mean ± SD (N)	0.24±0.17 (30)

No device and procedure related Severe Adverse Events (SAE) has been reported in this 30 pts up to 30-day FU

Conclusions

- In the initial 30 patients, KANSHAS DCB has showed its safety profile at 30-day follow-up.

- The follow-ups are currently on-going and the 6-month primary outcomes in the full population will be available in summer 2018.

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