

# **Comprehaem Registry - Safety and Performance of a Special Five Layers Bandaging Compression Haemostasis System After Coronary – Femoral Interventions. E Retrospective Analysis in Real World Patients in Kosovo Republic**

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## **Abstract**

**Background:** Percutaneous coronary vascular interventions in the last two decades managed to reach the old and burning goal for minimal or less trauma. The majority of minimal invasive techniques and materials are on a constant and perpetual development. The progress of overall PCI was definitive and of course still ongoing. However, the final and respectively crucial part of the PCI procedure- despite the usage of closure devices (VCD)- do not always meet the final goal which is to maintain the compression, securing the haemostasis without major complications or side effects. Ready to use femoral bandaging compression solutions were not available to maintain the haemostasis effect till the current era.

**Objectives:** This post market retrospective registry's goal is to assess the visibility and short term outcomes of securing the manual compression haemostasis throughout a special bandaging compression system after femoral/coronary or vascular interventions.

**Methods:** At this retrospective registry patients enrolled from January 2022 to December 2022, two thousand patients underwent femoral coronary intervention receiving dual antiplatelet therapy post procedural. Clinical data, procedural outcome and clinical follow up to twelve months were obtained; hematoma/swelling was the principal study endpoint. Secondary endpoints were puncture side pain, coldness in the right or the left foot, pain while walking and surgical reconstruction after aneurysm or pseudoaneurysm.

**Results:** Among the two thousand patients enrolled 68% were men and 32% were women with mean age of 64 years and 71 years old respectively. The BMI was 27 for the males and 25 for the females. 29% and 42% respectively had previous PCI and diabetes mellitus was 27% for both groups. The registry shows that: 1.8%/36 patients had minor hematoma/ swelling and 3.6%/72 patients had minor pain at the puncture site for 5 to 10 days after the procedure. No coldness in the right or left foot, no pain while walking. No surgical reconstruction of the site area (aneurysm or not related) needed or occurred.

**Conclusion:** The use of a dedicated special, ready for use femoral bandaging compression system (DFCD) is feasible, safe and effective for the maintenance of the haemostasis after femoral percutaneous intervention.

**Keywords:** Five layers bandaging compression system; Premofix uno

**Introduction**

Cardiovascular disease is one of the leading mortality causes in the world. According to the world health demography, the global deaths from CVD (coronary vascular disease) will increase from 17.1 million by 2030 (32% of all fatalities). PCI procedures are the main way of treating CVD in Kosovo Republic. Despite the usage of Vascular Closure Devices (VCD) the manual compression is the golden standard for decades (\*) [1-5].

The limitation of the manual compression is the lack of the continuous pressure to the access site of the artery. Additionally, the absence of a ready for use system to maintain the pressure to the access site in a persistent and effective way remains a big obstacle. Both of them can lead to access site bleeding. The majority of the access site bleeding are large and small hematomas. Thus, compression maintenance system (ready to use) premofox uno (CE approved) has been developed (Andanza International, Eswenge Germany) with an objective to create a sufficient and effective compression maintenance system (ready to use).

In the real-world patients, there was no system that could deliver the pressure of the excess site and maintain the achieved haemostasis with an atraumatic, antiallergic and patient friendly way. The primary aim of this retrospective study is to evaluate the clinical performance of premofox uno in treatment of the patients enrolled in everyday practice at the clinical centre of Pristina, Republic of Kosovo.

The primary endpoint was access site bleeding – hematomas and swelling. In addition, secondary endpoints such as puncture side pain, coldness in the right or left foot, pain while walking and surgical reconstruction after aneurysm and pseudoaneurysm formation, were analysed in the retrospective study [6-10].

**Study Design and Patient Population**

This is a retrospective non randomised single centre study with the main purpose to evaluate the safety and the efficacy of the premofox uno bandaging system for consecutive unselected patients treated in daily practice including those with dual antiplatelet drug therapy. These patients underwent PCI and have the puncture site securely compressed by premofox uno system (Andanza international, Eswenge Germany). The above patients have been enrolled from January 2022 to December 2022 at the clinical centre of Pristina, Kosovo Republic [11-15].

**Description of the study compression bandaging system**

The Premofox uno, Compression Bandaging System (CBS) is a five layers cotton bandaging system (CE approved). The premofox uno can be applied in seconds, can be opened and resealed within seconds for fast puncture side access and has a perfect fit with high stability. Premofox uno is a noninvasive, low cost, very convenient, safe and protective closure support system.

**Interventional Procedure and Adjunctive Medications**

All patients received a loading dose of 325 mg of aspirin and 300 mg of clopidogrel or 60 mg of prasugrel or 90 mg of ticagrelor. The procedure was performed according to the standard guidelines of the participating center. All patients received

dual antiplatelet therapy (DAPT) aspirin 75-300 mg/day indefinitely and clopidogrel 75 mg/day or prasugrel 10 mg/day or ticagrelor 90 mg twice daily for at least 12 months after the PCI [16-20].

**Definition and Endpoints**

The primary endpoint of this study was to determine the rate and the nature of hematomas/swelling which is defined as bleeding and swelling at the coronary intervention puncture site, during the follow up period following the index procedure. Clinical evaluation of puncture site pain, bilateral coldness of the feet and reconstruction of aneurysm or pseudoaneurysms formation was obtained as secondary endpoints [21-25].

**Statistical Analysis**

Categorical data were presented as counts and percentages.

**Results**

**Patients characteristics**

*Table 1: Baseline characteristics of the study population.*

Variables	Patients (n=2000)
Age	64±7
Males	(1360) 68%
Females	(640) 32%
BMI (kg/m), Mean ± SD	25 ± 2.00
<b>Baseline Medical History</b>	
Smokers	1200 (60%).
D. Mellitus	540 (27%).
Hypertension	1280(64%)
<b>Cardiac History</b>	
Angina	70 (3.5%)
Previous MI n%	164 (8.2%)
Prior PCI n%	262 (13.1%)

**Procedural Characteristics**

Premofox uno compression bandaging system treated 2000 puncturing sites (1 per puncturing). The greater percentage was the right site (84%) and the lower percentage was the left (14%).

**Clinical Outcomes**

At the mean follow up of 12 months the primary endpoint occurred in 36 (1.8% patients). From the secondary endpoints minor pain at the puncturing site occurred in 72 patients (3.6%) from 5 to 10 days after the index procedure. No coldness or any pain while walking in both legs and non-surgical reconstruction of the site (aneurysm or not related) needed or occurred [26-30].

*Table 2: Cumulative clinical events for mean follow up of 12 months for patients receiving \*Premofox uno (CBS).*

Events	Mean follow up
Hematomas	36 (1.8%)
Minor site pain (10 days)	72 (3.69%) Coldness of left or right foot 0
Pain while walking	0
Surgical reconstruction (aneurysm or not related)	0

\*CBS: Compression Bandaging System

**Discussion**

Premofox uno treated a total of 2000 patients included in this retrospective study. Construction of the premofox uno consists of a thin, five layers cotton bandage and utilizes a very strong

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Velcro at the edges. The system contains a polystyrene zeppelin shaped plug. Asset of this structure is that the longitudinal strength can be transferred and delivered from the bandage to the zeppelin structure. This feature leads to a precise, persistent and long-lasting pressure to the puncture site. This characteristic features to be extremely effective and safe for the real-world consecutive patients of this retrospective study [31-35].

Demographic data showed that 64% of the patients had hypertension, 27% had diabetes mellitus and all of them received dual antiplatelet therapy. This plays a significant role in the reduction of the puncture site bleeding after PCI.

Comprehensive studies report bleeding, itching, swelling of the puncture site, coldness of the feet, pain while walking and aneurysm or pseudoaneurysm formation while using the traditional manual compression techniques (despite the usage of intravascular system or agents) [36-40].

On the other hand, there are not plenty of clinical studies having the aim to compare the manual compression with the ready to use Compression Bandaging Systems (CBS).

Several studies show a higher rate of access site bleeding after manual compression after femoral coronary (FC)-43% [41-55]. Despite the use of Vascular Closure Devices (VCD) the most common type of access site bleeding consisted of large and smaller hematomas.

This leads to the conclusion that the transfemoral arterial access is still associated with higher access site bleeding rates.

These consisted mostly of hematomas in 30 days follow up (OASIS, OASIS 2 and CURE studies). At FERARI study the access site bleeding in FC was 45% of the patient's population [56-74].

## Conclusion

The access site bleeding and the relevant hematomas for femoral closure (FC) after PCI is still a significant side effect while performing traditional manual compression.

In conclusion this retrospective study demonstrates a significantly (dramatically) lower access site bleeding, hematomas and swelling of the access site.

In this study performed at an uncontrolled, real world patient population with a long term follow up the PREMOFIX UNO ready to use femoral compression bandaging system demonstrated prolonged safety and effectiveness in both the primary and secondary endpoints.

Therefore, PREMOFIX UNO femoral compression bandaging system would be the compression system of choice for the reduction of the hematomas/swelling of the puncture site after PCI and femoral closure (FC) additionally assisted from the ready to use nature and the very low complication rate.

## Limitations

This is a non-randomized study of a retrospective analysis in a single center. Thus, all the non-randomized studies' limitations are involved.

For example: selection bias of the access sites by individual choices, sheath diameters, techniques and materials may be involved.

Further analysis and randomization will be needed.

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