# Diabetes insipidus after pituitary surgery

**Direct testing with Copeptin proAVP** 

## **Pituitary surgery**

(transsphenoidal or cranial)

## Low Copeptin proAVP

(≤12h post-surgery level vs. baseline)

### **Diabetes insipidus**

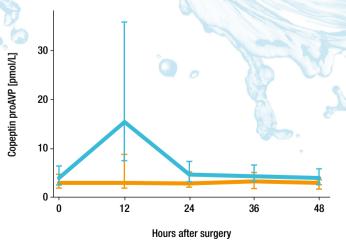
Low 12h post-operative Copeptin proAVP levels despite surgery-induced stress indicate later Diabetes insipidus. A lack of an increase of Copeptin proAVP within twelve hours after surgery indicates a **deficient function of the posterior lobe of the pituitary** and is therefore a reliable marker for the development of post-operative Diabetes insipidus.<sup>1</sup>

# **High Copeptin proAVP**

(≤12h post-surgery level vs. baseline

#### **Uneventful course**

A high 12h-post-operative Copeptin proAVP level is strongly predictive of an uneventful post-operative course in terms of Diabetes insipidus. In patients with an **intact posterior pituitary lobe function**, Copeptin proAVP levels increase due to surgery-induced stress within the first 12 hours after surgery.



9	Copeptin proAVP values	
	<b>Pre-operative</b> (pM, median [IQR])	Post-operative (pM, median [IQR])
Uneventful course (n=155)	<b>3.92</b> [2.5-6.5]	<b>10.8</b> [5.2-30.4]
Diabetes insipidus (n=50)	<b>2.9</b> [1.9-4.7]	<b>2.9</b> [1.9-7.9]
•	p=0.04	<i>p</i> <0.001

**Figure 1** Copeptin proAVP measurements at different time points in patients before (0 hours) and after pituitary surgery.



# **Copeptin proAVP** – a promising novel tool in the early goal directed management of patients after pituitary surgery

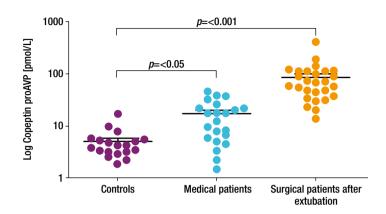
Surgery is a stressful event known to stimulate hypothalamic stress hormone release.<sup>2,3</sup> Maximal stress is generally experienced after extubation and it has been shown that Copeptin proAVP levels multiplied after surgical treatment (Figure 2).<sup>4</sup>

Manipulation of the pituitary gland during neurosurgery may alter its secretory function. **16-34% of patients undergoing pituitary surgery developed a post-operative Diabetes insipidus (DI).**<sup>5</sup> DI is therefore the most common cause of prolonged hospital stay.<sup>6</sup>

Although the disease is self-limiting and benign in the majority of cases, Diabetes insipidus occasionally develops into severe hypernatremia and hyperosmolality if the deficit of fluids is not immediately replaced.

Therefore, a timely and accurate diagnosis followed by an appropriate patient management is crucial.  $^{7.8}$ 

Copeptin proAVP, also called Copeptin, forms the C-terminal part of preprovasopressin. Upon stimulation, vasopressin and Copeptin proAVP are released from their storage granules in the pituitary and rapidly enter the bloodstream in equimolar amounts. <sup>9,10</sup> **Thus, Copeptin proAVP can be considered a true surrogate marker of vasopressin.** 



**Figure 2** Copeptin proAVP (Copeptin) levels in controls, medical patients and surgical patients after extubation, mirroring three different levels of physical stress <sup>4</sup>



## Fast, precise, and smart

## Copeptin proAVP - the better vasopressin

Your options to replace vasopressin (AVP) assays with easy and precise Copeptin proAVP (CT-proAVP) assays

- B-R-A-H-M-S<sup>TM</sup> Copeptin proAVP KRYPTOR<sup>TM</sup> (Automated immunofluorescent assay)
- B·R·A·H·M·S CT-proAVP LIA (Immunoluminometric assay)

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#### Article number 119.100

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#### www.copeptin.com

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