# Study of Copeptin as a Biomarker of Metabolic Syndrome and Diabetes Mellitus in Iraqi Females

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| **ABSTRACT** This study was aimed to measure copeptin levels in the metabolic syndrome (MetS) and Diabetes Mellitus in Iraqi Females because of its importance as a possible early biomarker of cardiovascular disorders related to MetS and Diabetes Mellitus. Arginine vasopressin (AVP) which is also called antidiuretic Hormone is released from the pituitary gland in conditions of high plasma osmolality, low plasma volume, and low blood pressure. Arginine vasopressin (AVP) is secreted under conditions of water deprivation. Since AVP has a low half-life in the plasma, the C-terminal fragment of AVP-precursor (copeptin) was used to estimate the AVP levels. the C-terminal sequence of pre-pro vasopressin (Copeptin), a 39-amino acid-long glycosylated peptide secreted equimolarly with arginine-vasopressin (AVP), has been used as an alternative marker of AVP because of its long-term stability and being easy to measure on blood [1, 2]. Copeptin is related to several cardiometabolic disorders, such as heart failure, T2DM, polycystic ovary syndrome, preeclampsia, and renal disease [3,4]. A role for the AVP system in glucose homeostasis, insulin resistance, and diabetes mellitus. In patients with poorly controlled diabetes mellitus, plasma AVP is markedly elevated, [5] and in healthy subjects, AVP infusion leads to increased blood glucose levels [6]. plasma copeptin levels correlated with body mass index, fasting plasma glucose and insulin, homeostasis model assessment of insulin resistance, triglycerides, and (inversely) high-density lipoprotein cholesterol .High plasma copeptin was associated with reduced insulin sensitivity . High copeptin levels increase the risk for the development of diabetes mellitus independently of established clinical risk factors, including fasting glucose and insulin. These findings could have implications for risk assessment, novel antidiabetic treatments, and metabolic side effects from arginine vasopressin system modulation.**References:** [1] M. Christ-Crain,( 2019) “Vasopressin and copeptin in health and disease,” Reviews in Endocrine & Metabolic Disorders, vol. 20, no. 3, pp. 283–294.[2] M. Christ-Crain and W. Fenske,( 2016) “Copeptin in the diagnosis of vasopressin-dependent disorders of fluid homeostasis,” Nature Reviews Endocrinology, vol. 12, no. 3, pp. 168–176 . [3] I. Bellos, V. Pergialiotis, A. Papapanagiotou, D. Loutradis, and G. Daskalakis, (2020) “Association between serum copeptin levels and preeclampsia risk: a meta-analysis,” *European Journal of**Obstetrics & Gynecology and Reproductive Biology*, vol. 250, pp. 66–73.[4] T. Noor, F. Hanif, Z. Kiran et al., (2020) “Relation of copeptin with diabetic and renal function markers among patients with diabetes mellitus progressing towards diabetic nephropathy,” *Archives of Medical Research*, vol. 51, no. 6, pp. 548–555.[5] Zerbe RL, Vinicor F, Robertson GL. (1979) Plasma vasopressin in uncontrolled diabetes mellitus. Diabetes ;28:503–508.[6] Spruce BA, McCulloch AJ, Burd J, Orskov H, Heaton A, Baylis PH, Alberti KG.( 1985) The effect of vasopressin infusion on glucose metabolism in man. Clin Endocrinol ;22:463– 468. |

# Keywords: arginine vasopressin , copeptin , diabetes mellitus, metabolic syndrome