Forum Minireview

New Topics in Vasopressin Receptors and Approach to Novel Drugs:
Preface

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Arginine vasopressin (AVP) is a cyclic nonapeptide that is centrally synthesized in the hypothalamus. Vasopressin has a plethora of biological effects including not only organ regulation but also behavioral ones, which are mediated by the vasopressin-receptor subtypes V1a (vascular), V1b (pituitary) V2 (renal), and oxytocin receptors. Recently, non-peptide vasopressin receptor–selective agonists and antagonists have been developed. Relcovaptan is a selective V1a-receptor antagonist, which has shown initial positive results in the treatment of Raynaud’s disease, dysmenorrhoea, and tocolysis. SSR-149415 is a selective V1b-receptor antagonist, which may have beneficial effects in treatment of psychiatric disorders. The V2-receptor antagonists mozavaptan, lixivaptan, satavaptan, and tolvaptan induce a highly hypotonic diuresis without substantially affecting the excretion of electrolytes. Conivaptan is a V1a/V2 non-selective vasopressin-receptor antagonist that has been approved by the US Food and Drug Administration as intravenous infusions for in-hospital treatment of euvoelamic or hyervolaemic hyponaetraemia. OPC-51803 is a novel nonpeptide vasopressin V2-receptor agonist, which may be useful for treating micturition disorders. These disorders result in frequent micturition due to polyuria, nocturnal polyuria, and some kinds of urinary incontinence.

Therefore, we had this symposium to present current information about AVP and discussed possible future therapeutic drugs. This mini-review forum is based on the symposium at the 81st Annual Meeting of The Japanese Pharmacological Society held in March, 2008, in Yokohama, Japan. All authors hope this series of mini-reviews will provide some current hints to develop novel therapeutics and research in these fields.

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