

Treatment Activity of Co(II)-based Coordination Polymers on Postpartum Hemorrhage by Increasing the Prothrombin Activity

Bingbing SHANG

*Department of Ophthalmology, Lanzhou University,
Lanzhou, Gansu, China*

SUMMARY. In the present study, through utilizing the mixed-ligand generation method, two coordination polymers (CPs) based on Co(II), namely, $[\text{Co}(\text{nba})_2(\text{tmdp})]_n$ (1) and $[\text{Co}(\text{biphen})_2(\text{tmdp})]_n$ (2), were created through the reaction between 4,4'-trimethylenedipyridine (tmdp) and $\text{Co}(\text{NO}_3)_2 \cdot 6\text{H}_2\text{O}$ with associated carboxylates: 4-biphenylcarboxylic acid (Hbiphen) and the 4-nitrobenzoic (Hnba). Their treatment activity on the postpartum hemorrhage was evaluated and the mechanism was explored at the same time. Firstly, after the postpartum hemorrhage model construction and the compound treatment, the prothrombin activity in the plasma was assessed by measuring the prothrombin time (PT). Next, ELISA detection kit was used to determine the levels of the factor IX and factor XI in the plasma.

RESUMEN. En el presente estudio, mediante la utilización del método de generación de ligandos mixtos, se obtuvieron dos polímeros de coordinación (CP) basados en Co(II), a saber, $[\text{Co}(\text{nba})_2(\text{tmdp})]_n$ (1) y $[\text{Co}(\text{biphen})_2(\text{tmdp})]_n$ (2), se crearon mediante la reacción entre 4,4'-trimetilendipiridina (tmdp) y $\text{Co}(\text{NO}_3)_2 \cdot 6\text{H}_2\text{O}$ con carboxilatos asociados: el ácido 4-bifenilcarboxílico (Hbiphen) y el 4-nitrobenzoico (Hnba). Se evaluó su actividad terapéutica sobre la hemorragia posparto y al mismo tiempo se exploró el mecanismo. En primer lugar, después de la construcción del modelo de hemorragia posparto y el tratamiento compuesto, se evaluó la actividad de protrombina en el plasma midiendo el tiempo de protrombina (PT). A continuación, se utilizó el kit de detección ELISA para determinar los niveles del factor IX y del factor XI en el plasma.

KEY WORDS: coordination polymers, ELISA detection, postpartum hemorrhage.

* Author to whom correspondence should be addressed. E-mail: s_bingbing22@126.com