

NEPHROCALCINOSIS AND MEDULLARY SPONGE KIDNEY IN AVIATION PILOTS: CLINICAL AND AEROMEDICAL PRACTICE

NEPHROCALCINOSE ET REIN MEDULLAIRE SPONGIEUSE DANS LES PILOTES D'AVIATION: PRATIQUE CLINIQUE ET AÉROMÉDIQUE

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Introduction: To investigate the clinical and aeromedical practice of nephrocalcinosis and Medullary sponge kidney (MSK) in aviation pilots. To formulate standard of diagnosis and treatment, propose the suggestions of prevention and follow-up.

Methods: To analyze the clinical data of 126 pilots with suspected kidney stones, who were diagnosed and treated from May 2013 to May 2017 in Civil Aviation General Hospital. Records were reviewed of 2 patients, all with endoscopic diagnosis of MSK and data collected pertaining to presentation, stone events and recurrences, stone composition, and metabolic profile to perform a descriptive study with median 12-month follow-up.

Results: 126 pilots underwent Flexible ureteroscopy examination. 120 (95.2%) pilots were verified to be kidney stones and the stones were taken out. Among them, 24 (19%) was diagnosed as nephrocalcinosis and stones, 6 (4.8%) pilots didn't find identified stones and diagnosis of nephrocalcinosis may be considered, and two pilots was diagnosed as MSK. Metabolic profile was obtained, including urine pH, urine analysis for 24 hours, and early kidney damage. The results of overall with flexible ureteroscopy that pass the medicine certification are qualified and they are all allowed to fly. There was no stone recurrence.

Discussion/Conclusion: MSK is a kidney malformation that generally manifests with nephrocalcinosis and recurrent renal stones. The diagnosis of MSK by radiology has become unreliable. Flexible Ureteroscopy is the gold standard for the diagnosis of nephrocalcinosis and MSK. These are the aviation pilots where metabolic evaluations and attempts at stone prevention are most critical. Nephrocalcinosis is more common than previously appreciated and does not necessarily indicate systemic disease or the specific developmental disorder of MSK. MSK is a complex and poorly understood disease in aviation pilots. Treatment strategies and aeromedical health management of MSK should be individualized.