

Life threatening upper gastro intestinal discomfort under Sevelamer carbonate in hemodialysis patient.

O.Dahmani¹, M.Djeghim², D.Bouguern¹, P. Voulot¹, M.Revol¹, I. Martins¹

1-Nephrology –dialysis department, Saint Claude 39200 ,France

2- emergency and trauma department, Saint Claude 39200 , France

Background: Hyperphosphatemia is a frequent condition usually observed earlier in the course of chronic kidney disease (CKD) and becomes symptomatic when creatinine clearance falls below 30ml/min/1.73m². It is associated with increase in cardio vascular events, worsening residual renal function, skeletal and extra skeletal calcifications, secondary hyperparathyroidism, metabolic bone disease and increased overall mortality. Management of hyperphosphatemia depends on non-pharmacological and pharmacological measures involving two dominant pathways. At the present, there are four types of non- calcium phosphate binders including magnesium salts, Sevelamer (hydrochloride and carbonate), lanthanum carbonate and ferric salts. Sevelamer carbonate has been found to have the same safety and efficacy profile as Sevelamer hydrochloride in hemodialysis patient. Herein, we describe a patient who develops severe upper gastro intestinal discomfort complicated by life-threatening hematemesis, few days after starting Sevelamer carbonate.

Case presentation : This 60 year old man is undergoing regular hemodialysis due to cyclosporine nephrotoxicity. He is known to have two episodes of heart transplantation, sustained ventricular tachycardia, and splenic vein thrombosis leading to portal hypertension, 02 episodes of peritonitis while being under peritoneal dialysis, chronic pancreatitis with subsequent steatorrhea and diabetes mellitus, bacteremia due infected prosthetic vascular access (Gore-Tex) and frequent episodes of hematemesis. Patient has been presenting frequent episodes of hematemesis at the dawn of 2015 controlled by endoscopic pasting of his esophageal varicose veins. He starts avoiding copious food and omitting insulin therapy with the consequence of vicious circle in controlling his acquired diabetes mellitus. He became restless and fearful of dialysis program related to the repetitive failure in puncturing of his vascular access. To solve this actual event, he was put under single needle dialysis each time the staff nurse failed. Laboratory data was in favor of poor dialysis clearance as confirmed by Kt/v less than 1, persisting symptomatic hyperphosphatemia and erythropoietin demand increment (Aranesp 150 ug/week for a dry weight of 59 kg). This later, trigger more iron consumption which was replaced by twice weekly administration of iron during dialysis session. Sevelamer carbonate 2.4 grams once a day was prescribed in adjunction to cholecalciferol 100000 ui twice monthly as his vitamin D2 was less than 7 nmol/l. Patient exhibits signs of cardiac failure and show high grade risk of thrombosis documented by BNP at 1500 ng/ml and Ddimeres at 1617 ng/ml respectively with normal coronary artery imaging. Intact parathyroid hormone level was at 250 pg/ml. on examination he was severely malnourished and neuro- muscular examination suggested decreased tone and power (UKGS 3/5) of all limbs with depressed reflexes. There was a reduced perception of peripheral vascular pulse suggesting an advanced non occlusive chronic vascular disease. Unfortunately, patient stopped taking Sevelamer carbonate because of frequent episodes of nausea and vomitus. Nine months later, he developed an infected graft treated by antibiotics and an insertion of an interposed polyurethane patch. Thereafter, he was dialyzed through a single needle with clinical and biological feature of under- dialysis. Sevelamer carbonate was prescribed as before. Unfortunately, patient reports more upper gastro intestinal leading to reemerging life threatening hematemesis, upper abdominal discomfort and loose motions. These symptoms attenuated by discontinuing the offending drug three weeks later. His current treatment includes: Tacrolimus 6mg BID, mycophenolate mofetil 500 mg BID, carvedilol 25 mg BID, insulin glargine/Aspartate, acetylsalicylate, esomeprazole and pancrealipase for exocrine pancreatic insufficiency and cholecalciferol 100000 UI twice monthly.

Discussion: The most common used phosphate binders in CKD are divided in three classes according to their pharmacological profile. At the present, the most widely used calcium based, then the non –absorbable polymers (sevelamer) and lately heavy metal salts dominated by lanthanum carbonate (fosrenol). Recently, ferric compounds (citrate and oxyhydroxyde) were introduced to enrich the latest class after the abandoning aluminum salts due to their unexpected serious toxicity. Sevelamer have been used either as hydrochloride or carbonate. The former has been associated with metabolic acidosis and costly due to a large pill burden and the later shares the same gastro intestinal side effect and same efficacy. At two different periods, our patient develops symptomatic hyperphosphatemia associated poor dialysis efficiency that requires sevelamer carbonate. Early upper gastro intestinal symptoms appear earlier requiring prompt discontinuation. These symptoms results from probable mucosal irritation of his esophageal various veins. The reproduction of these symptoms were observed with the same agent while re introduced for the same purpose but this time it was associated by loose motion. Under his regular anti-rejection drugs known to cause loose motion, patient never complained such adverse events. The repeatability and reproducibility of such phenomenon is a proof that Sevelamer carbonate is the sole agent responsible of favoring upper and lower gastro intestinal side effects. Patient is symptom free after improving his dialysis efficiency while being punctured with two needles allowing us to reduce the session's time. He is a known case of esophageal varicose veins which remained silent despite further acute clinical conditions. Upper and lower gastro intestinal side effects that develop under Sevelamer carbonate are the most common reason for drug withdrawal as in our case. Other adverse more serious events such bleeding, perforation, ulceration and necrosis have been described. Patients under

both Sevelamer carbonate and potassium resin exchanger are prone to develop more and serious complications. This observation has to be confirmed by further randomized studies.

Conclusion : Sevelamer carbonate is as effective as Sevelamer hydrochloride in controlling hyperphosphatemia of patients under dialysis. In patient with previous gastro intestinal illness , it should be administrated under strict observation.