Review 00005191 firstly summarizes my paper as follows:

"*The review discusses the forgotten issue of CO2 load from dialysis solution, as acidosis by dialysate may occur causing early hypercapnia followed by respiratory failure. Another risk is the large amount of CO2 moving from dialysis solution to the extracorporeal circuit. The Authors mention previous studies that have only partially addressed these issues but conclude that CO2 as respiratory component of acid-base pattern is at least as important as the metabolic component in acid-base assessment also in hemodialysis patients. Clinicians must estimate the value of partial pressure of pCO2 complying with the reduced HCO3 concentration, but recommendations on what should be used are lacking. As formulas are different, results are often inconsistent. Textbooks provide some tips to easy calculate the expected pCO2. The Authors stress that it has never been investigated whether different CO2 loads should be recommended to a particular hemodialysis patient. Vascular access recirculation may be easily and profitably discovered by means of easy blood sampling. The issue of CO2 load during renal replacement therapy has indeed been neglected so far and has not been in depth investigated. For this reason the paper brings an interesting message to the clinical community involved with renal replacement therapies. To infer and diagnose mixed acid-base disorders, physiologic respiratory response to metabolic acidosis should be considered and the expected pCO2 value should be computed."*

Then, he/she states:

"*The review could profit from some minor editing in style and some minor linguistic improvement but on the whole it is well written and well researched."*

I wish to thank him/her for this comment. Polishing of the text and minor changes have been made.

Review 02887546 states *‘‘Please make the suggested grammatical corrections”*

I wish to thank reviewer for his/her help. All suggested grammatical corrections have been made.

Review 26955 suggests to take into consideration the following points:

1) *The abstract is a bit long and doesn't highlight the main points of the manuscript. In fact, there is significant overlap with the Introduction. I suggest writing a shorter abstract that highlights the main points the authors are trying convey.*

Thank you for this very helpful suggestion. Abstract has been entirely rewritten. The new Abstract is the follow:

"*The large prevalence of respiratory acid-base disorders overlapping metabolic acidosis in hemodialysis population should prompt nephrologists to deal with the partial pressure of CO2 (pCO2) complying with the reduced bicarbonate concentration. What the most suitable formula to compute pCO2 is reviewed. Then, the neglected issue of CO2 content in the dialysis fluid is under the spotlight .In fact, a considerable amount of CO2 comes to patients' bloodstream every hemodialysis treatment and "acidosis by dialysate" may occur if lungs do not properly clear away this burden of CO2. Moreover, vascular access recirculation may be easy diagnosed by detecting CO2 in the arterial line of extracorporeal circuit if CO2-enriched blood from the filter reenters arterial needle.*

2) *Define DOPPS study*

In the "Bicarbonate and beyond" paragraph the sentence "*Results from DOPPS study [2] ……..* " has been replaced by: *Results from Dialysis Outcomes and Practice Patterns (DOPPS) study [2]…….*"

3) *The article is written for a knowledgeable target audience, It would help broaden the audience if the authors provided a little more introduction that would benefit students new to the field. Imagine medical students reading the review.*

Many thanks for this suggestion. I have modified the Introduction section by replacing the following sentence:

"This approach clearly neglects serum HCO3 modifications that are secondary to respiratory disorders" with "*The finding of a low HCO3 value has been always regarded as a sign of metabolic acidosis, but respiratory alkalosis also is featured by decreased HCO3 concentration. Hence, diagnosing metabolic acidosis based on the latter parameter clearly neglects serum HCO3 modifications that are secondary to respiratory disorders*".

Then, the sentence: *"Moreover, the surprising large prevalence of respiratory acid-base disorders, often coupled with metabolic acidosis, should prompt nephrologists to deal with the pCO2 complying with the reduced HCO3 concentration. "* has been replaced by the followings: *"In these patients, respiratory acid-base disorders have been recently found in a large percentage and this should further prompt nephrologists to deal with the pCO2 complying with the reduced HCO3 concentration. Mixed disorders occur if measured pCO2 is not consistent with the expected value."* Finally, I further add this explanation: *"As a result of CO2 clearance and of HCO3 addition from dialysis solution, patient's blood pH increases "*

4) *There are a modest number of grammatical errors and some language polishing is in order.*

The manuscript has been reviewed in order to improve English language.