

## CARTA AL COMITÉ DE REDACCIÓN

### AMNIOTIC FLUID AS THE NEXT GENERATION OF ORGAN PRESERVATION SOLUTIONS: “COMMENTARY ON ‘CAN AMNIOTIC FLUID BE AN ALTERNATIVE ORGAN PRESERVATION SOLUTION FOR COLD RENAL STORAGE’”

*FLUIDO AMNIÓTICO COMO LA PRÓXIMA GENERACIÓN DE SOLUCIONES PARA LA PRESERVACIÓN DE ÓRGANOS: “COMENTARIO SOBRE ‘¿PUEDE EL LÍQUIDO AMNIÓTICO SER UNA SOLUCIÓN ALTERNATIVA DE CONSERVACIÓN DE ÓRGANOS PARA EL ALMACENAMIENTO RENAL EN FRÍO?’”*

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Dear Editor,

This letter is a comment on the paper by Büyük *et al.*<sup>(1)</sup> entitled “*Can amniotic fluid be an alternative organ preservation solution for cold renal storage?*”.

In the mentioned paper amniotic fluid (AF) is suggested as an alternative material for cold storage in kidney transplantation.<sup>(1)</sup> When histopathological data at hematoxylin and eosin level are evaluated together with the results of immunohistochemical examination and TUNEL apoptosis evaluation, the results of the study may break a ground in terms of organ transplantation. Moreover another study that shows that AF can be effective as a preservative in terms of cold storage damage of the liver supports this idea.<sup>(2)</sup> But yet there are still blind spots that needs to be clarified.

Amniotic fluid is a well structured fluid for all kinds of living tissues. It is quite logical to think that this fluid is also a good alternative for organ transplantation, due to its protective, stabilizing and regulatory function from the moment when

the tissues are most fragile to the most mature time at the relevant time in the uterine cavity.<sup>(3)</sup> While water and electrolytes constitute a large proportion of the content of the amniotic fluid, the rest contains various proteins, peptides, carbohydrates, lipids, amino acids, hormones, antimicrobial molecules, lactate, pyruvate, and growth factors.<sup>(4)</sup> The first situation that emerges at this point is to determine which components of the AF contribute to the organ preservation and at what rates. In addition, considering the ethical status of AF to be obtained from human pregnancies and possible immunological reactions, synthetic production gains importance and it may not be easy to produce AF synthetically with its exact formation as it is in the uterine cavity. For this reason, if AF is going to be used in routine practice as an organ preservation solution, the determination of the indispensable components in a synthetic production close to the original should be the main target. The second important point to be focused on is that multiple factors

such as hypothermia, ischemia, hyposcopy and reperfusion take place in damage formation in cold storage damage. It is also important for routine use to determine which of these mechanisms has protective function and with which pathways in AF.

As a result, AF seems to have the characteristics of replacing the University of Wisconsin solution (UW)<sup>(5-6)</sup> –which is accepted as the gold standard in preservation for organs such as liver, kidney and pancreas– and alternatively cheaper solution of Histidine Tryptophan Ketoglutarate (HTK). After clarifying the effectiveness of AF's components and mechanisms of action, it is recommended to evaluate its effectiveness in other transplant organs such as lung and heart. And finally, after appropriate evaluations and modifications, it is believed that AF will become the gold standard in organ preservation in the future.

**Conflict of interest:** Authors declare no conflict of interest.

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