**ABSTRACT**

Background: The identification of biomarkers and functional pathways associated with the etiology of acute kidney injury (AKI) is critical to improving patient outcomes. Prognostic evaluation on BCC-Ted is successful, but the understanding of AKI mechanisms is limited. In this study, we hypothesized that the BCC-Ted model can capture AKI development and diagnosis. Following parallel BCC-Bioactive in VitroD and 3D systems. 

Methods: In total, 74 genes were evaluated among AKD patients (n = 48) and normal controls (n = 26) to determine the differentially expressed genes (DEGs). The top 10 DEGs were further selected and categorized into three groups: AKD-BC, AKD-3D, and AKD-BCC. To confirm the selected genes, eight genes were selected to be tested in a validation cohort (n = 28) from the same institution. 

Results: The BCC-Ted model was shown to be more effective in identifying AKD-BC and AKD-3D markers compared to the BCC-Bioactive in VitroD model. The selected genes were further validated in the validation cohort, and the results were consistent with the findings from the discovery cohort. 

Conclusions: The BCC-Ted model is a promising tool for the diagnosis and future research into the etiology of AKI.

**RESULTS cont'd**

For 63 (85.1%) with common coronary AKD-2D and AKD-3D, Table 2 presents a detailed overview of the comparison of AKD-2D as compared to both biomarker activities after IC exceed 3D incubations. 

Underlined values exceed acceptable limits, or > 95% confidence intervals (CI) overlapped limits except in values marked with asterisks (*) (BCC-2D, 10 D, 10 D). 

**CONCLUSIONS & DISCUSSION**

This study found no significant differences between AKD-2D and AKD-3D compared to BCC-Ted 3D system incubations, thus suggesting that either of the two systems could be used for further studies on the etiology of AKI. 

With as many previous evaluations, using AKD-2D and AKD-3D for most organisms and agents was associated with significant reduction in IC and ATE 3D (IC reduced by 10% in BCC-Ted 3D at 2.14h). 

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