

# ELEVATED LEVELS OF HEPATOCYTE GROWTH FACTOR FOLLOWING HEART TRANSPLANT AND THEIR RELATION TO ORGAN RETRIEVAL AND EARLY OUTCOME

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## Background

- Hepatocyte Growth factor (HGF) is a pleiotropic hormone which possesses important cardioprotective properties.
- It attenuates the death of cardiomyocytes and coronary endothelial cells under ischaemic stress, and promotes angiogenesis.
- Early following myocardial injury, levels of HGF rise in proportion to the size of injured area.
- Cardiac allografts are subjected to considerable ischaemia and reperfusion stress.
- This study analyses early postoperative levels of HGF and associates them with ischaemic time and outcome.

## Methodology

- 14 consecutive cardiac allograft recipients were enrolled into the study between November 2004 and February 2006.
- Serum levels of HGF were determined by ELISA at daily intervals for the first week following implantation and these were compared with the following clinical parameters:-
  - demographics of donor and recipient
  - retrieving centre
  - technique of retrieval
  - clinical state of donor at retrieval
  - ischaemic time
  - intensive care stay
  - hospital stay
  - need for re-exploration
  - need for intra-aortic balloon pump postoperatively
  - Need for inotropic support postoperatively

## Conclusion

- Postoperative levels of HGF are correlated with the ischaemic time of the donor organ.
- This may identify failure of adequate preservation and the need for increased intervention in the early post-operative period
- Early HGF levels may provide a means of quantifying injury to the donor organ at retrieval and implantation

## Results

- There was a significant correlation between levels of HGF on day 4 postoperatively and the ischaemic time of the donor organ ( $p=0.03$ ).
- High levels of HGF (levels above the median of 5391 pg/ml) correlated significantly with the need to surgically re-explore the patient ( $p=0.002$ )
- High levels of HGF also correlated with duration of hospital stay ( $p=0.001$ )
- There were no significant correlations between HGF levels and need for inotropes/balloon pump post transplant, clinical state of donor at retrieval, donor/recipient demographics, and intensive care stay.
- Very high levels of HGF were seen after hearts from one particular centre (centre X) were implanted, indicating a possible failure of adequate preservation ( $p=0.02$ ).

