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Social collaboration network analysis of animal-derived regenerative implantable medical devices: An overview based on Chinese literature from databases of CNKI, WANFANG DATA and VIP

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Background: Tissue engineering involves many disciplines such as biology, material science, medicine and engineering, so, the collaboration among different research departments is becoming an important factor to enhancing research outputs with the rapid development of related sciences and technologies.

Objective: To draw the visualizing map of collaboration network of animal-derived regenerative implantable medical devices based on tissue engineering technology and describe its evolving process and current situation.

Methods: 2518 Chinese literatures about the animal-derived regenerative implantable medical devices based on tissue engineering technology published before 31st December 2014 were searched in CNKI, WANFANG DATA and VIP. Subsequently, social network analysis was conducted on those literatures by utilizing UCINET software and SASI developed by Peking University.

Results & Conclusion: The collaboration network of the animal-derived regenerative implantable medical devices has evolved from scattered to single-core dominated, and then to a core-edge one, characterized by increasing and extensive collaborations as well as decreasing network density and centralization. The core units from 2010 to 2014 include Tsinghua University, General Hospital of Chinese PLA and Affiliated Nanfang Hospital of South Medical University. Also, plenty of edge institutes exist. In conclusion, edge institutes should expand their scope of cooperation, while core institutes should improve their cooperation sustainability. Furthermore, cooperation among enterprises, research institutes and clinical hospitals should be strengthened to promote the industrialization of tissue engineering technology.

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