One Hundred Years of Heparin

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Opinion

This year is the 100th anniversary of the discovery of heparin, the main anticoagulant drugs for more than 70 years [1], and we would like to remind its discovery. Heparin is a highly-sulfated glycosaminoglycan. It was first discovered by J McLean and WH Howell. McLean was a second-year medical student, at Johns Hopkins University, who was assisting Howell in the investigation of procoagulant preparations. Howell suggested to him that he study the nature of the thromboplastic substance to identify the active principle of this extract. In 1916 the young student isolated a fat-soluble anticoagulant in canine liver tissue [2]. It was discovered serendipitously in the course of a problem.

However, McLean had to leave college in 1917 because of lack of money. A year later Howell and his alumni LE Holt developed another fat soluble anticoagulant apparently distinct and they called "heparin" - from Ancient Greek "hepar" (liver) [3]. Many years later he presented further refinements to that protocol (1926) and the final result was a compound different from anticoagulant isolated by McLean (1916) and by Howell (1918). In the 1920 Best started the clinical development of unfractionated heparin, extracting it from beef liver and showing that it was a source of best dog liver heparin. It has taken 20 years from the discovery of heparin to its therapeutic use (1935), the first human trials of heparin were conducted.

References