Perioperative care of hip fracture patients

VALORIZATION ADDENDUM

RELEVANCE

Hip fractures are a major socioeconomic- and health burden. This thesis contributes to the improvement of various aspects of care for hip fracture patients. Even with optimal care, improved techniques and implants, elderly hip fracture patients suffer from high morbidity and mortality rates, which is associated with increased health care costs [1].

In the Netherlands more than 20.000 patients sustained a hip fracture in 2010 [6]. Prognostic calculations predict that the proportion of the population aged 65 and above will increase from 18% in 2017 to 26% in 2040 [7]. An increasing proportion of the population will be over 80 years old [7]. This will result in an increased incidence of hip fractures in the future. This thesis showed that the consequences of a fractured hip are serious for elderly patients. Up to 9% of patients die within 30-days, 29% within 1 year and 38% within 2 years after surgery [8]. Postoperatively, expensive aftercare is needed for rehabilitation, but the chance of full recovery to pre-fracture level of mobility is low [2-4]. Institutionalized elderly regained only in 17% of their overall functional ability and 13% returned to their pre-injury ambulatory status [5]. This thesis offers an extensive overview of perioperative care of hip fracture patients.

TARGET POPULATION

The results of this thesis are relevant for health care professionals who are involved in the treatment of hip fracture patients such as orthopaedic and trauma surgeons, anesthesiologists, geriatricians, emergency physicians, cardiologists but also general practitioners, emergency staff, ambulance staff and nursing home physicians. In addition, the results of this thesis are of interest for (medical) companies (profit and non-profit), which are developing medical devices, products, apps and more to improve care for hip fracture patients.

THIS THESIS

With the patella pubic percussion test (PPPT) we propose a bedside technique to guide for further imaging when no clear fracture is found on X-rays, but clinically suspected (occult hip fracture). The PPPT has the potential to prevent missed

fractures and the costs associated with it. Missed hip fractures lead to secondary hip displacement, with increased risk of avascular necrosis of the femoral head, non-union and higher chances of morbidity after future operations [10]. We have organized local hands-on workshops for emergency staff, ambulance personal, general practitioners and surgeons about the PPPT. During these workshops we discussed the use of PPPT in a prehospital setting vs. the use of the PPPT in the case of expected occult hip fracture on an emergency department.

With a proper preoperative assessment we aim to reduce the risk associated with surgery and anaesthesia, to increase the quality of perioperative care, to restore the patient to the desired level of function, and to obtain the patients informed consent [11]. We have demonstrated shortcomings in preoperative cardiac screening of elderly with hip fracture. This thesis showed that 'cardiac overscreening' is a commonly occurring phenomenon and leads to increased delay to surgery, which poses a risk for perioperative complications and early mortality. These results show that it is important for treating teams to evaluate their own hip fracture care path and preoperative screening. National guidelines and quality indicators for Dutch hospitals advocate definitive treatment within 24 hours [12]. Preoperative cardiac screening should be executed in accordance with the American College of Cardiology & American Heart Association (ACC / AHA) guidelines, in this way unnecessary delay or excessive use of medical recourses and costs are prevented.

Finally, we performed a clinical study on implant failure after intramedullary nailing with dual lag screws for extracapsular hip fractures. The secondary purpose of this study was to evaluate the use of such implants for different fracture types in our institution. Studies on implant failure, are of great value for medical industries and indirectly lead to further improvement of their products.

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