



EDITORIAL

[Translated article] THE REVOLUTION OF THROMBOPROPHYLAXIS IN ORTHOPAEDIC SURGERY AND TRAUMATOLOGY

[Artículo traducido] LA REVOLUCIÓN DE LA TROMBOPROFILAXIS EN CIRUGÍA ORTOPÉDICA Y TRAUMATOLOGÍA

Over the last 50 years we have used different drugs for the prophylaxis of thromboembolic disease in our specialty. The advent of low molecular weight heparins (LMWH), relegated sodium heparin, and at least in Europe, other drugs such as warfarin, to the background. They have proven to be effective and safe. However, lack of adherence to treatment due to subcutaneous administration means that alternatives need to be investigated. With the advent of the new direct-acting oral anticoagulants, oral treatments are now available. The main drawbacks are the reasonable doubt of an increase in haemorrhagic complications, their difficult reversal in the event of an emergency and their high cost.

However, despite the many options on the market, we have not managed to reduce the rate of fatal pulmonary thromboembolism in the last 15 years¹. Recently, the International Consensus on Thromboprophylaxis concluded that there is no evidence that any preventive treatment reduces the risk of fatal pulmonary thromboembolism. (<https://icmphilly.com/vte-71-is-administration-of-any-vte-prophylaxis-effective-in-reducing-the-risk-of-fatal-pe/>). Therefore, all orthopaedic surgeons performing high thromboembolic risk interventions in the field of Orthopaedic Surgery and Traumatology must assume that one of our patients may suffer a fatal pulmonary thromboembolic event.

We are all familiar with the benefits of aspirin as an antipyretic, analgesic and even as an arterial antithrombotic, but it is only in recent years that it has acquired great importance in venous thromboprophylaxis in our speciality, especially in orthopaedic surgery of the lower limbs and in

hip fractures. As early as Hippocrates' Greece, white willow bark, rich in salicylin, was used to treat fever and pain. During the Middle Ages, willow bark fell into disuse in the face of opium and mandrake, and it was not until the 18th century that German and French chemists resumed research into this drug, but the gastrointestinal side effects made it unsafe. It was the German scientist Felix Hoffman who in 1897 succeeded in synthesising the pure and stable form of acetylsalicylic acid, in search of a remedy for the terrible pain his father suffered from "chronic rheumatism". It was patented and presented by Bayer under the name we all know: Aspirin. From then on, its success was unquestionable. It was one of the most widely used drugs in the First World War and in 1950 it entered the Guinness Book of Records as the world's best-selling analgesic. It was also one of the 13 drugs in the Apollo 13 medical kit and, in 1982, Professor John Vane won the Nobel Prize for the discovery of its mechanism of action by inhibiting prostaglandin synthesis.

In the last two decades, studies on aspirin as an antithrombotic have resumed, especially in our speciality. Numerous studies have shown aspirin to be at least as effective and safe in thromboprophylaxis as those commonly used, well tolerated due to its oral administration and cheaper than other available drugs^{2–6}. This gives it unique characteristics that make it a candidate option to become the "gold standard" for thromboprophylaxis in the coming years. Although it has been used in the USA for several decades, in Spain this change seems to us to be a real revolution. And we must be aware that such radical changes must be progressive, especially because in our case, they may have important legal implications. International guidelines endorse its use (CHEST, AAOOS, NICE), even with short guidelines of 14 days in some procedures such as primary knee arthroplasty (NICE 2021).

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Regarding the appropriate dose of aspirin, the largest number of studies have been conducted in primary hip and knee arthroplasty, and a low dose of 100 mg twice daily is considered to be as effective as high doses⁷⁻¹¹. This fact also favours patient tolerance to the drug, as many of our patients already take aspirin at these doses as a baseline treatment. The benefits of aspirin are such that there are even studies that suggest that by reducing the percentage of local bleeding complications, the percentage of infections could be reduced¹², compared to treatment with other drugs¹³. We are all eagerly awaiting the definitive publication of the International Consensus on Thromboprophylaxis led by Dr. Parvizi, in which several Spaniards have had the opportunity to participate, and which follows this same line.

In the meantime, the preliminary documents can be downloaded from the website <https://icmphilly.com/vte-icm-pre-print-questions-answers/>.

The association of aspirin with mechanical measures, especially intermittent mechanical compression measures, seems to be the winning combination in 21st century thromboprophylaxis^{14,15}. In our opinion, aspirin is here to stay as the drug of choice in thromboprophylaxis in our specialty, although it is true that the vast majority of studies have been conducted in primary hip and knee arthroplasty, as well as in hip fractures, so the role of aspirin in other areas of traumatology and orthopaedic surgery has yet to be defined.

SECOT has developed our society's new thromboprophylaxis guideline introducing these new trends. Aspirin and mechanical measures become a first-line option, especially in primary hip and knee arthroplasty. This new version provides updated recommendations for thromboprophylaxis in foot and ankle surgery, arthroscopy, upper limb, spine, pelvis and hip fractures, and hip and knee arthroplasty.

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