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## BRACHIAL PLEXUS INJURIES IN ADULTS: GUIDELINES AND MANAGEMENT IN OUR EXPERIENCE

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### ABSTRACT

According to the data published in current medical literatures, brachial plexus injuries affect slightly more than 1 % of multi-trauma patients. Motorcycle accidents were the leading cause associated with the occurrence of these lesions that often lead to severe disability mostly in young individuals. The vast majority of these patients were young males between 15 and 35 years. After the injury, approximately 95% of these patients suffer from excruciating pain that poses an additional burden on the quality of life, already disrupted by the functional impairment of the upper limb. Despite the statistical rarity, brachial plexus injuries clearly have a remarkable impact on the community. Today with new techniques in the role of surgical procedures, the quality of life of many of these patients can be improved especially in partial lesions allowing functional recovery, rescuing these young individuals from disability and improving their lifestyle. Early diagnostic assessment with prompt referral to the surgeon is crucial to obtain a positive outcome. Physiotherapy plays a vital role in the rehabilitation process. The Author aims to illustrate guidelines in the management and surgical treatment of brachial plexus injuries as gained in over 20 years of experience in medical practice.

**Key words:** *Brachial plexus injuries, Scapular fracture, Clavicular fracture, Root avulsions, 3D MRI, Nerve transfer and Nerve graft*

### INTRODUCTION

Brachial plexus palsies are the most common traction injuries in traumatic events causing a sudden, excessive widening of the head-shoulder angle or a forceful distraction of the upper limb away from the trunk. Epidemiological studies are few, but available data are mostly reports from North America. It is reported that about 1-5% of multitrauma patients presenting to a tertiary trauma facility had sustained brachial plexus injuries (BPIs) mostly as a result of two causes; motorcycle and snowmobile accidents (Midha 1997).

In 2006, a national prevalence of approximately 350.000 patients and an annual incidence of roughly 3500 new BPIs per year were estimated in the United States of America (USA). There are increasing incidences of these lesions (Narakas 1985; Ferraresi et al. 1994; Jain et al. 2012; Kaiser et al. 2012;

Garozzo et al. 2013; Faglioni et al. 2014; Park et al. 2017), due to the spreading motorization in developing countries (especially in South-East Asia) and the ongoing warfare in the Arab world.

The compulsory use of safety helmets has resulted in a higher survival rate after motorcycle accidents in comparison with the past. But helmets may even contribute to increasing BPIs incidences as they increase the weight of the head, facilitating the forceful widening of the head-shoulder angle during trauma. It is reported that after enforcing the use of safety helmets by law in Italy, there was a significant increase (32%) in severe, almost irreparable lesions in comparison with previous data reported in the

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