Pelvic and Acetabular Fractures

Abstract:
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Abstract
Patients that sustain pelvic and/or acetabular trauma in Ireland and require surgical intervention are treated at the Adelaide and Meath National Children's Hospital (AMNCH). For this study an audit was conducted of all pelvic and acetabular fractures referred to the AMNCH over a 12 month period from July 2010 to June 2011. This study was conducted with the purpose of recording the different fracture patterns, methods of injury and surgical procedures performed over this time frame. The results demonstrate that 109 patients were referred to the AMNCH with the majority of these fractures being sustained as the result of an RTA (43) or a fall from a height (45). Seventy one patients suffered an acetabular fracture while 43 patients suffered a fracture of their pelvic ring with some patients suffering both. There were 129 surgical procedures performed with 25 patients having more than one surgical procedure.

Introduction
The Adelaide and Meath National Children's Hospital (AMNCH), as the national tertiary referral centre, has a long history in treating pelvic and/or acetabular injuries. However before transfer to the AMNCH all pelvic and/or acetabular fractures are first admitted to the regional trauma centres located throughout Ireland. There these patients are resuscitated and stabilised. The initial necessary diagnostic imaging is also performed at this stage. Then once an opinion is required with regard to further treatment, the AMNCH trauma department is contacted with the relevant information and images forwarded for review by one of the specialist orthopaedic surgeons. If surgical intervention is required, transfer to the AMNCH is arranged once the patient is medically fit and the necessary surgery is performed. When the patients are comfortable post operatively, they are either discharged directly home or transferred back to the referring hospital until ready for discharge.

Methods
In July 2010, a database of all referrals, both patients accepted for surgery and those managed conservatively locally, was created in the AMNCH trauma department. The objective was that all referrals would be recorded on this database at time of referral. A more elaborate electronic referral pathway was initiated from January 2011 to July 2011 through an email based system. To compile the data for this study, the charts were reviewed on all patients that were recorded on both these databases. The theatre log books were also reviewed to ensure that all the patients had been identified and included in the study. This data was then compiled for this 12 month period.

Results
The results were that a total of 109 patients were referred to the AMNCH with a 100 admissions. There were 71 patients with acetabular fractures, 43 with pelvic ring fractures and some with both. The etiology of these injuries as identified in the study is displayed in Table 1. Finally a total of 129 separate surgical procedures were performed in treating these patients with more than 1 procedure performed on 25 patients.

Discussion
This study demonstrates, that as already documented in the literature, high energy trauma is required to create pelvic and/or acetabular fractures, as the majority of the fractures identified in this study resulted from high energy trauma in the form of a road traffic accident (RTA) or a fall from a height. In discussing the RTAs, of the 43 patients that were involved in a RTA, 33 were motorists, 3 were cyclists, 3 were motorcyclists, 3 were pedestrians and one was injured while operating a steam roller. The fracture patterns sustained by the patients involved in the RTAs consisted of 27 acetabular fractures, 16 pelvic ring fractures and some had both. The majority of the pelvic ring fractures were sustained by the motorcyclists, pedestrians and cyclists with only a few sustained by the motorists. It is worth mentioning that of the 33 motorists, it was documented in the medical notes that 9 were not wearing a seatbelt. This would suggest this basic element of road safety may again need to be reinforced. The not wearing of seatbelts and an association with pelvic fractures has previously been documented and is not a new phenomenon.

The number of pelvic and/or acetabular fractures secondary to falls amounted to a total of 45 patients. The majority of these falls occurred at work. However a few did occur at home while involved in DIY. Again the fact that the majority of these injuries were sustained in the work place highlights the fact that health and safety standards need to be enforced and adhered to in all work environments. Finally a total of 129 separate surgical procedures were performed over the 12 month period and this is an example of the workload undertaken at the AMNCH in the treatment of these patients. The information provided by this study and future audits may help to provide a knowledge base to tailor the service provided at the AMNCH to the needs of the country.

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References