Routine Targeted Echocardiography: Reducing Operative Delay for Fractured Neck of Femur Patients

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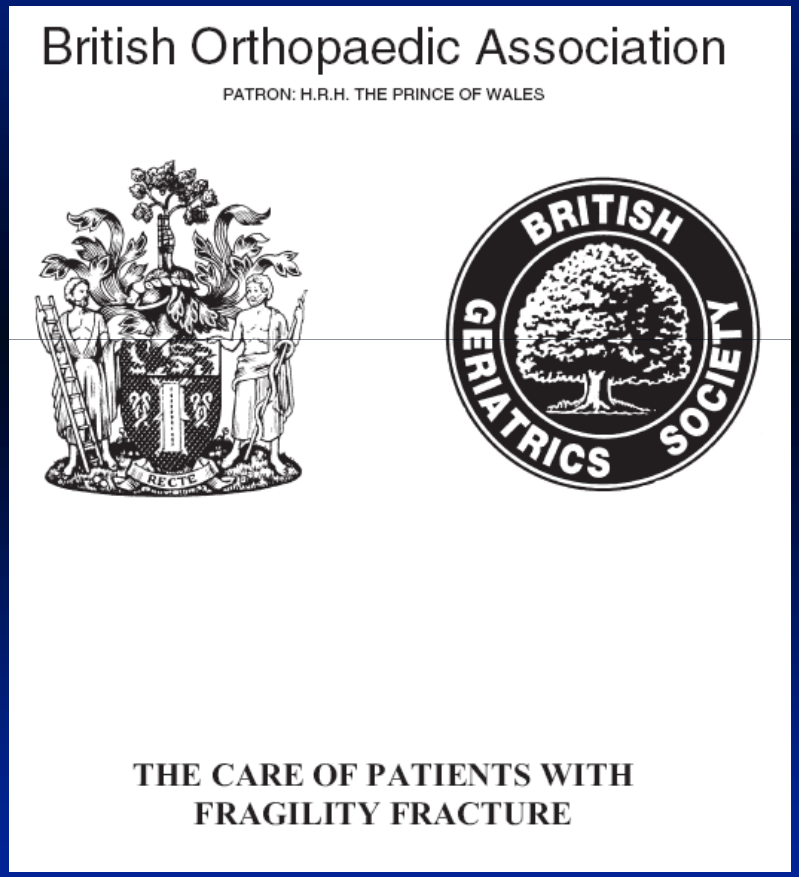

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Standard 2

All patients with hip fracture who are medically fit should have surgery within 48 hours of admission, and during normal working hours

NHFD Fields 1.04 and 4.01

The 2001 National Confidential Enquiry into Perioperative Deaths (NCEPOD) report[3] recommended echocardiographic assessment of all cardiac murmurs, but this is not always possible prior to urgent surgery. If an echo can be obtained without causing delay, the information may be useful. However, the absence of echocardiography should not lead to delays in fixing the fracture.

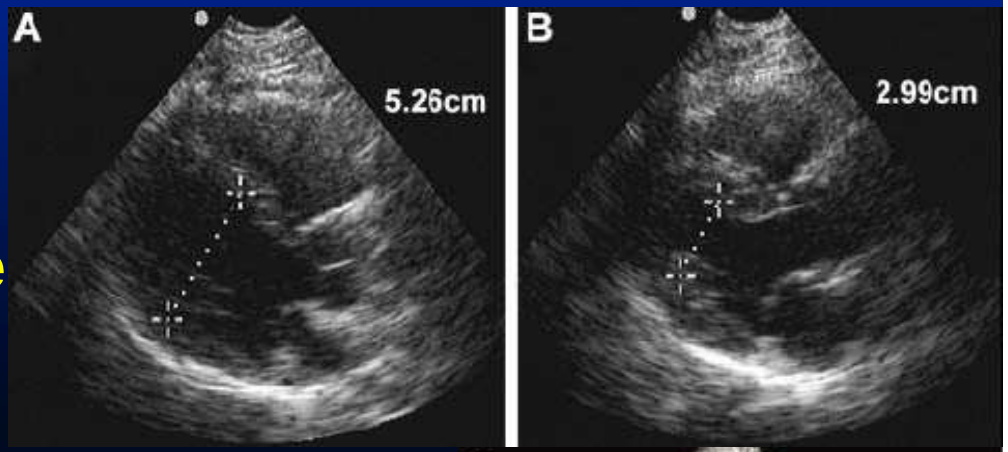
British Orthopaedic Association. The Care of Patients with Fragility Fracture. September 2007.
http://www.boa.ac.uk (accessed 10/07/08)

The National Confidential Enquiry into Peri-operative Deaths Report 2001.Changing the way we operate.
http://www.ncepod.org.uk/2001cwo.htm (accessed 10/07/08)

- A delay in obtaining echo delayed theatre for # NOF patients.
- Solution – Echo everyone!

Routine Targeted Echocardiogram

- **LV Systolic Function**
  - **Normal, Mild, Moderate, Severe**



- **Aortic Valve**
  - **Normal - Non Severe AS - Severe AS - AR**
  - **Aortic Gradient**

- Facilitates choice of anaesthesia
- Guides intra-operative anaesthetic management
- Bedside test
- Quick
- Techs scan newly admitted #NOFs 5 days a week

Audit Method

- **Period 1 –**
  Echo on demand (May 2005 – June 2006)
  13 months

- **Period 2 –**
  All patients Targeted Echo (June 2007 – August 2007)
  3 months

Period 1

Total Number Patients	**550 (42 per month)**
Departmental Echocardiograms Requested	**84 (6.5 per month)**
Notes Retrieved	**72**

Period 2

Total Number Patients	**118**
Targeted Echocardiograms	**96 (32 per month)**
Departmental Echocardiograms	**2 (0.7 per month)**

Results : Delays

	Days to echo ± SD	Days to surgery ± SD	Length of stay ± SD
Period 1 Departmental Echo	5.4 ± 3.4 (n=72)	7.5 ± 5.5 (n=72)	27.5 ± 16.2 (n=72)
NOFs No Echo	–	4.04 ± 3.2(n=478) (P<0.001)	18.6 ± 12.5 (n=72) (P<0.01)
Period 2 All patients Echoed	0.96 ± 0.7 (n=96)	2.87 ± 1.9 (n=118)	21.0 ± 12.3 (n=118)

Results : Aortic Valve Pathology

	Normal	AS Non Severe	AS Severe	AR
Period 1 Departmental Echo	24 (33%)	30 (42%)	15 (21%) 52	3 (4%)
Period 2 Routine Targeted Echo	78 (81%)	9 (9.5%)	9 (9.5%)	0

Results : LV Function

	Normal	Mild	Moderate	Severe
Period 1 Departmental Echo (n=72)	37 (51%)	14 (20%)	16 (22%)	5 (7%)
Period 2 Routine targeted Echo (n=96)	78 (81%)	16 (17%)	2 (2%)	0

Economic Argument for Targeted ECHO

	Unit Cost	Period 1 Cost per month	Period 2 Cost per month
Routine Targeted Echo	£10	£0	£320
Selective Departmental Echo	£60	£388	£40
Total Cost		**£388**	**£360**
Bed Cost	£155	£4407	£0
Total Cost		£4795	£360

Discussion

- **Expedient treatment vs Adequate preoperative evaluation**
- **Sensitivity and specificity auscultation 82%, 69%**
- **Logistics**
- **Cost**

Sandby-Thomas M, Sullivan G, Hall JE. A national survey into the peri-operative anaesthetic management of patients presenting for surgical correction of a fractured neck of femur. Anaesthesia. 2008; 63: 3;250-258

van Klei WA, Kalkman CJ, Tolsma M, Rutten CLG, Moons KGM. Pre-operative detection of valvular heart disease by anaesthetists. Anaesthesia 2006; 61: 127–32

Reichlin S, Dieterle T, Camli C, Leimenstoll B, Schoenenberger RA, Martina B. Initial clinical evaluation of cardiac systolic murmurs in the ED by noncardiologists. Am J Emerg Med 2004;22:71–75.

Conclusions

- **Echo delay = Operative delay**

- **Routine Targeted Echocardiography;**
  - **Reduces this delay.**
  - **Satisfies anaesthetic requirements.**
  - **Offers significant cost savings.**

Thank You

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