

## **Incidence and Management of Arthralgias in Breast Cancer Patients Treated with Aromatase Inhibitors in an Outpatient Oncology Clinic**

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## **Objectives**

- Describe the role of aromatase inhibitors (AIs) in the treatment of breast cancer
- Describe the incidence and impact of AI-induced arthralgias
- Discuss the management of AI-induced arthralgias in breast cancer patients

I HAVE NO CONFLICTS OF INTEREST TO REPORT



## **Study Location**

- **Kellogg Cancer Centers (KCC)**
  - Established in 1981
  - One of the first National Cancer Institute (NCI) Community Clinical Oncology Programs (1983)
- **Three locations**
  - Evanston, IL
  - Glenview, IL
  - Highland Park, IL
- **Average number of patients treated per month: 1100**



## **Breast Cancer**

- **Most common type of cancer in women in US**
- **More than 2.5 million breast cancer survivors nation-wide<sup>1</sup>**
- **192,370 new cases per year**
- **40,170 deaths per year**
- **2<sup>nd</sup> most common cause of cancer-related deaths among women in US<sup>1</sup>**



## **Breast Cancer**

- **Approximately 75% of breast cancers are hormone receptor (+)<sup>2</sup>**
- **Postmenopausal women synthesize estrogen in adipose, muscle and breast tissue <sup>2</sup>**
- **Aromatase enzyme converts androgens to estrogen <sup>2</sup>**
- **AIs inhibit estrogen synthesis by blocking this conversion <sup>2</sup>**



## **Aromatase Inhibitors (AIs)**

- **First line adjuvant treatment in postmenopausal women with hormone receptor (+) tumors<sup>3,4</sup>**
- **Recommended length of treatment: 5 years<sup>3,4</sup>**



## AI Adverse Effects

- Hot flashes
- Insomnia
- Fatigue
- Osteoporosis
- Arthralgias



## AI-Induced Arthralgias

- A common side effect of AI therapy
- Frequently cited as the primary reason for lack of compliance<sup>5,9</sup>
- Affected joints: wrists, hands, knees, back, ankles, and feet<sup>7</sup>
- Few management strategies proposed in literature
- No standard treatment algorithm in place at Kellogg Cancer Center (KCC)



## Study Purpose

- Evaluate incidence and management of AI-induced arthralgias in the outpatient oncology clinic at KCC
- Develop a treatment algorithm and electronic medical record (EMR) documentation tools



## Methods

- Retrospective EMR review of 206 patients seen for follow up at KCC from 7/09 through 10/09
- IRB approved



## Methods

- Inclusion Criteria:
  - Postmenopausal women with stage I-III hormone receptor positive breast cancer currently taking or have taken AI therapy
- Exclusion Criteria:
  - Pre-existing rheumatoid arthritis
  - Metastatic disease



## Methods

- Definition of postmenopausal:
  - Prior bilateral oophorectomy OR
  - Amenorrhea for 1 year with intact uterus and ovaries OR
  - Serum estradiol and FSH levels commensurate with menopause for  $\geq 6$  mos



## Methods

- Data Collected:
  - Age
  - Weight
  - Length of AI therapy
  - Co-morbidities
  - Medication history
  - Reports of arthralgias
  - Arthralgia management



## Methods

- Primary Endpoints:
  - Assess overall incidence of AI-induced arthralgias at KCC
  - Evaluate management of AI-induced arthralgias



## Methods

- Statistical Analysis:
  - Chi square and binomial two-sided exact test for descriptive statistics
  - Two-sample independent t-test for continuous variables
  - A  $p$ -value  $<0.05$  was considered statistically significant



## Results

- AI-induced arthralgias in KCC patients occurred at a rate of 48% which was similar to those reported in literature (40%)<sup>5,6,7</sup>
- Patients who reported arthralgias were younger than patients who did not report arthralgias (61 vs. 65 years,  $p=0.002$ )



## Results

- Incidence of arthralgias same among all AIs: anastrozole, exemestane and letrozole ( $p=0.729$ )



## Results

- 32% documented as having arthralgias within the 1<sup>st</sup> 6 months of therapy
  - Literature suggests arthralgias occur in first year of AI therapy with 60% presenting within 1<sup>st</sup> 6 months of treatment<sup>6,8, 10,11</sup>



## Results

- No difference in incidence of arthralgias in patients who received chemotherapy compared to those who did not ( $p=0.352$ )
  - In literature, chemotherapy cited as common cause of arthralgias, potentially making it difficult to determine cause in patients receiving both



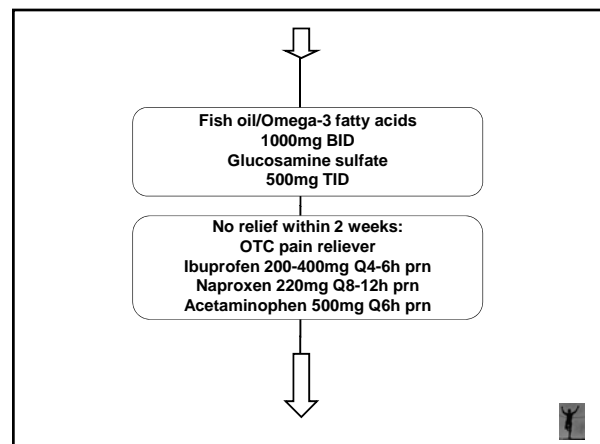
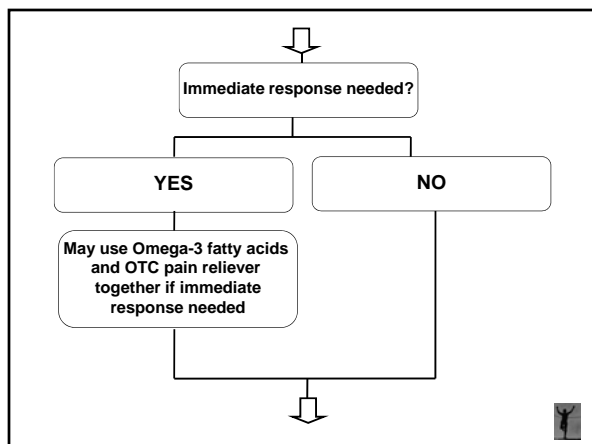
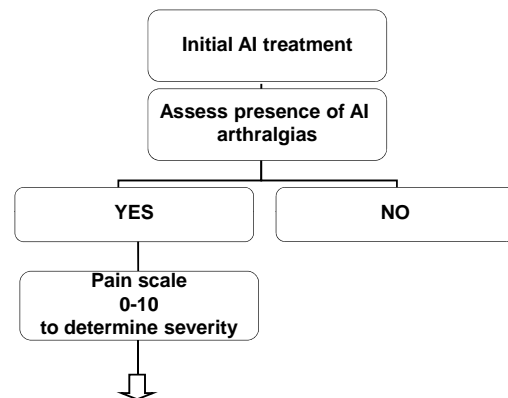
## Results

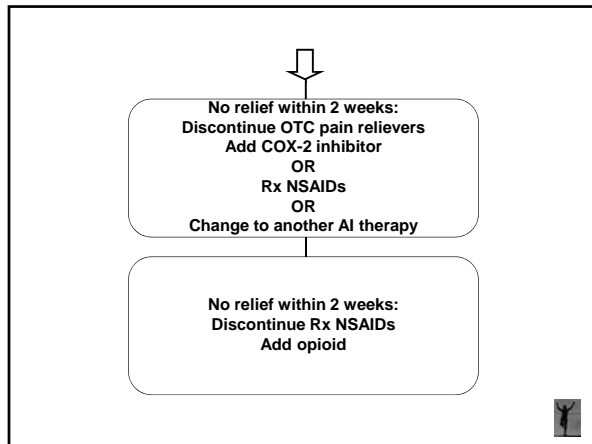
- Of patients with AI-induced arthralgias, 88% were managed without AI therapy alteration
- 41% of patients presenting with arthralgias did not have documentation of arthralgia management in EMR



## Treatment Algorithm

- A treatment algorithm based on treatments for arthralgias found in literature and KCC physician experience





### Documentation Tool

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**KCC AI Arthralgia Assessment**

Pain Scale assessment: (Pain scale 15209)

Type of pain: (Pain type 15210)

Which joints are affected: (Affected joints 15211)

Problem occurs during which time of day: (Problems occur 15212)

Does pain interfere with functioning: (Interfere functioning 15213)

Treatment algorithm: (Treatment algorithm 15214)

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**KCC AI Arthralgia Assessment**

Pain Scale assessment: (Pain scale 15209)

Type of pain: (Pain type 15210)

Which joints are affected: (Affected joints 15211)

Problem occurs during which time of day: (Problems occur 15212)

Does pain interfere with functioning: (Interfere functioning 15213)

Treatment algorithm: (Treatment algorithm 15214)

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### Documentation Tool

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**KCC AI Arthralgia Assessment**

Pain Scale assessment: 3/10

Type of pain: (Pain type 15210)

Which joints are affected: (Affected joints 15211)

Problem occurs during which time of day: (Problems occur 15212)

Does pain interfere with functioning: (Interfere functioning 15213)

Treatment algorithm: (Treatment algorithm 15214)

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**KCC AI Arthralgia Assessment**

Pain Scale assessment: 3/10

Type of pain: stiffness and swelling

Which joints are affected: (Affected joints 15211)

Problem occurs during which time of day: (Problems occur 15212)

Does pain interfere with functioning: (Interfere functioning 15213)

Treatment algorithm: (Treatment algorithm 15214)

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### Documentation Tool

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**KCC AI Arthralgia Assessment**

Pain Scale assessment: 3/10

Type of pain: stiffness and swelling

Which joints are affected: wrists, elbows and knees

Problem occurs during which time of day: (Problems occur 15212)

Does pain interfere with functioning: (Interfere functioning 15213)

Treatment algorithm: (Treatment algorithm 15214)

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## Documentation Tool

\*Based on Common Terminology Criteria for Adverse Events (CTCAE) V 3.0<sup>12</sup>

## Documentation Tool

## Documentation Tool

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## Self-Assessment Question:

**Aromatase inhibitors are indicated for which types of patients with breast cancer?**

- A. Premenopausal women with early stage disease
- B. Premenopausal women with hormone receptor positive disease
- C. Postmenopausal women with hormone receptor negative disease
- D. Postmenopausal women with hormone receptor positive disease

### **Self-Assessment Question:**

Which statement regarding AI-induced arthralgias is TRUE?

- A. AI-induced arthralgias never interfere with AI therapy
- B. AI-induced arthralgias are highly uncommon
- C. AI-induced arthralgias are the most frequently cited reason for discontinuation of AI therapy
- D. There is a “gold standard” for treatment for AI-induced arthralgias



***Questions???***



Post Test Questions

1. Aromatase inhibitors are indicated for which types of patients with breast cancer?
  - A. Premenopausal women with early stage disease
  - B. Premenopausal women with hormone receptor positive disease
  - C. Postmenopausal women with hormone receptor negative disease
  - D. Postmenopausal women with hormone receptor positive disease
  
2. Which statement regarding AI-induced arthralgias is TRUE?
  - A. AI-induced arthralgias never interfere with AI therapy
  - B. AI-induced arthralgias are highly uncommon
  - C. AI-induced arthralgias are the most frequently cited reason for discontinuation of AI therapy
  - D. There is a “gold standard” for treatment for AI-induced arthralgias
  
3. Of patients presenting with arthralgias, which percent did not have documentation of arthralgia management in EMR?
  - A. 14%
  - B. 34%
  - C. 57%
  - D. 41%